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THE RESPONSIBILITY OF THE GRADUATE EDUCATOR IN NEUROLOGY AND PSYCHIATRY

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• *World War II brought about acceptance of the relationship between emotional disturbances and such organic dysfunctions as peptic ulcer, migraine, hypertension, and asthma. Nevertheless, the tendency to compartmentalization, splitting neurology from psychiatry, and even making distinctions between office psychiatry and the handling of acutely disturbed patients, continued to inordinate extremes. The result has been an excessive devotion to particular methods of diagnosis or modes of therapy on the part of the teachers, with a commensurate unwillingness to acquire a truly broad training on the part of their students. The deviations and excessive specialization of the trainees out in practice result from similar tendencies among their teachers. Broadness is the essence, for the generation now being produced must not hand on a tradition of constricted interests and unbalanced perspectives to the generations that follow.*

It is some 10 years since an eager group of men in the fields of neurology and psychiatry came back from military service pledged to do something about the teaching of these disciplines. They met an equally interested number who had remained at home but who had come to the same conclusions. Joining them were many former medical officers who had had a rich experience in the psychosomatic disorders incident to war. The relationship between emotional disturbances and organic dysfunction exploded on the American scene like a bombshell. Many had talked or written about this long before Pearl Harbor, and rich literature, even textbooks, had appeared in the prewar period, but universal acceptance had to await the war.

Psychiatry

Men and women, recent and even older graduates, clamored for training. Governmental and private agencies as well as veterans' benefits helped to subsidize these programs, and many new training centers were established. Older institutions were enlarged and improved to meet the need. Psychiatry had received a tremendous impetus. Its able leaders across the country oriented lay and professional groups. The general press published numerous articles on the relationship between emotions and peptic ulcer, migraine, hypertension, and asthma. Medical schools incorporated psychiatry into basic teaching. Finally the discipline had broken away from its identification with the asylum or outlying sanatorium and was integrally woven into the pattern of medicine.

The psychoanalysts were in the forefront of this crusade, and the principles of the Freudian school dominated the scene. Even the earlier dynamicists, the followers of Adolf Meyer, gave way before those who taught the concept of unconscious motivation. The Meyerians had held out until 1940, but, to quote Gitelson,[1] "We see then that the chief contribution of psychoanalysis to American psychiatry had been to complete the structure which was originally given it by psychobiology. Without the concept of the unconscious and the things which follow from that concept, the sense and meaning which Adolf Meyer observed in mental illness remained without system and unity. With this concept psychiatry has really become holistic."

The long struggle was over. A few intransigents, here and there, held out, but today dynamic psychiatry is the orientation of most American schools, graduate and undergraduate. There has been a tremendous increase in the number of psychiatric units in general hospitals and in extramural psychiatry with the development of a wide range of psychotherapeutic techniques. The teaching of psychotherapy is a must in every residency curriculum. Patients are no longer simply labeled and sent off for a "rest cure" to a state hospital or to a sanatorium. An attempt is made to help work the problem through.

Neurology

Meanwhile, what was happening to neurology? Here was a respected, even learned, discipline. In its past it had numbered some of the greats of American medicine. What was its state after World War II? To answer this we must examine neurology rather closely, because in many ways it was moribund. This specialty

From the Department of Neurology and Psychiatry, Northwestern University Medical School.
Presidential Address, read before the Central Neuropsychiatric Association, Colorado Springs, Oct. 21, 1955.

is a queer organism. Periodically it gets sick—seriously, even critically, ill. Consultants are called together: practicing neurologists, basic science men, neurological surgeons, psychiatrists, internists, and general medical educators. These gatherings are called symposiums, institutes, or study sections. The sick creature is examined, turned over and over, and recommendations are made to save it—by amputations, by forced feeding, or by special medicaments. Thus, for example, we have read "Divorce it from psychiatry," or "Graft it onto neurological surgery," "Let the neurologist be diagnostician only," or "Hook it up with electroencephalography," "Absorb it into internal medicine." While the would-be therapists are arguing what part to articulate or disarticulate, the sick patient is getting better and proceeds to leave the sick bed, unnoticed by the consultants, and goes about his business again.

The reason is simple. Every human being has a nervous system, and this set of organs suffers from diseases that require the ministrations of a physician who understands the mechanism. Of 1,146,662 deaths in 1930, 163,408 or 14% were listed as due to diseases of the nervous system.[2] In 1946 the percentage was the same: 14%. In 1962 it will still be 14%, although the absolute number of deaths will be greater because of the increasing population, particularly in the older age group. In short, every seventh person ultimately dies of neurological disease, while in the course of living 30% have neurological symptoms.

Why did neurology get so sick in 1946, and what must be done to keep it alive and vigorous? Neurology became ill because many of the leaders had fixed ideas that the neurologist must treat only that which shows structural change in the nervous system. Few dared depart from that dictum. Many continued a tradition by being only diagnosticians; the discipline lacked a distinctive therapeusis. The story is told of an East Coast neurologist who would sweep into a hospital on a consultation, hand over his high silk hat to his footman, examine the patient, write a sesquipedalian diagnosis, and sweep out. The consultation ended with the diagnosis. One of my own attending men at the Cook County Hospital would look up and down ward 4, fix on a patient with ulcerations of the hand, and say to me, "Ah, dot's a Morvan's disease. You have an autopsy permit on him?" Some of the former trainees from the National Hospital, Queen's Square, London, were notorious for their poor handling of patients with neuroses. Some 25 years ago a then neurologist, now exclusively a psychoanalyst, refused to see patients with functional diseases in the outpatient clinics of a medical school.

Such fixed thinking may be classified as "Maginot mentality." It seemed good, scientific, ivory-tower pure in its scholasticism, but the world of medical progress went around it, just as the German panzers circumvented Marshall Maginot's underground redoubts. The march of new knowledge threatened to engulf neurology. Fortunately, a certain basic residue could not be swept away, notably the nervous system and its diseases. No matter what happened, neurologists were needed, even if they were few and a bit tattered by wear.

This was the situation in 1946, when neurology reached its nadir, and plans were made to dismember the dying organism. Neurosurgery would take one part, psychiatry another, medicine a third, etc. The term neuropsychiatry, born in World War I, was to be dropped. The neurological part was window dressing for dignity and respectability. These men practiced psychiatry to earn a living. No "neuro" prefix was needed; there was no neurological discipline.

I have already pointed out that war with its stresses had brought psychiatry to the fore. The years of research into the dynamic factors in such diseases as peptic ulcer, ulcerative colitis, migraine, hypertension, and asthma suddenly found their expression in widely circulated medical journals and in the public press. These were important discoveries and contributions to our understanding, but deep psychotherapy, even psychoanalysis, often hit an immutable layer underneath. This was explained away as constitutional factors or heredity-determined reactions, e. g., there were "nose reactors," "gut reactors," "blood vessel reactors." In short, there were underlying factors that were possibly organically determined. Deeply depressed, mute, or regressed patients, not reachable by psychotherapy, became responsive after a few electroshock treatments; patients with severe delusions became amenable to psychotherapy after a course of therapy with insulin coma. What was happening to them? These were physiological treatments. The internists treating neurological disease encountered a new type of pathology. Neural tissue did not react like tissue elsewhere. There was no cell replacement in the central nervous system. The blood-brain barrier barred medicaments introduced through the blood stream. The physiology was new and complex. The internists would have to start their education afresh to treat neurological disease. But at the same time, their own field was flourishing. What with sulfonamides, antibiotics, corticotropin and cortisone, radioactive drugs, and long-acting insulin, they had all they could do to stay abreast. Neurology was still a stepchild.

Then the neurological surgeons moved in and still are in the field working at neurology as a second choice. Their virtue was the zeal for therapy. Something must be done for or to the patient. How was the heretofore passive neurologist to handle this? The resurgence began in 1947, chiefly in the younger group. The American Academy of Neurology was founded in 1948 by a group of well-trained, dedicated men who were interested in treatment of the neurologically ill patient. The Veterans Administration employed 200 neurologists to meet the needs of the war-injured and diseased. It established 14 approved centers affiliated with medical schools and set up specialized programs in epilepsy, aphasia, spinal cord injuries, neurological rehabilitation, and electroencephalography. The drive of the American Academy of Neurology group under A. B. Baker and his colleagues, including the then chief of neurology of the Veterans Administration, Pearce Bailey, culminated in 1950 in the formation of the National Institute of Neurological Diseases and Blindness of the United

States Public Health Service. From this institute came support for intramural as well as extramural research and aid for the establishment and maintenance of graduate training programs in neurology.

Other groups had caught the fever too. The American Association of Medical Colleges discussed the subject in a study section in 1949,[2] and the American Neurological Association, chiefly under the leadership of Dr. L. J. Pollock, analyzed the status of neurology in the United States in 1949 [3] and held a symposium on neurological education at the annual meeting in June, 1953.[4] Advances in anatomy, physiology, and particularly neurochemistry and neuropharmacology had implemented the resurgence of the field. Regimens of therapeusis, rehabilitation techniques, and neurological approaches to behavior and even to memory became part of the current literature. Exciting drug discoveries were made: The use of mestinon in myasthenia gravis and of lysergic acid in psychotic reactions; the reexamination of the effects of mescaline, yohimbine, and the porphyrins; the role of microenzymes; and the uses of trace metals such as copper and cobalt were but a few. Chlorpromazine and reserpine had proved to be a great aid in allaying anxiety and irritability. The mode of action of these tranquilizers in the nervous system was to be studied. We were entering an era of biological psychiatry. A young, virile national society now bears that name, and many of its members are the so-called neurologists who are interested in the organic roots of behavior.

Neurological Survey

What about the neurological surgeon in this own milieu? At first he was interested in neoplasms of the brain and spinal cord. He had developed the important diagnostic techniques of air study, myelography, and angiography. Operative skills had improved, and the danger from the procedure per se had been minimized. Progress had been made in the care of cranial, spinal, and peripheral nerve injuries. The improvement in the management of the paraplegic patient was one of the bright spots in American medical history, although the neurologist, the internist, the genitourinary specialist, the plastic surgeon, the orthopedist, and the physiatrist all played equally important roles. The peripheral nerve injury also received better understanding with help from neurophysiological research in electromyography and electrodiagnosis. The neurological surgeon was successfully attacking such problems as angiomatous malformations and aneurysms. The surgical approach to the autonomic nervous system, however, still left much to be desired. While the technique had improved, the reasons for the procedure and the long-term results still were indefinite. The attack on pain with chordotomy, thalamotomy, and lobotomy was also a forward step, but in an area that needed further development. The surgical approach to the psychoses, neuroses, or epileptic disturbances through the various lobotomies—classical, partial, and transorbital—and topectomy, amygdaloidectomy, temporal lobe amputation, or thalamotomy were being reported from various centers with enthusiasm. Less mutilating techniques with use of a Horsley-Clarke machine with electrolytic, alcohol, or ultrasonic lesions were being investigated. In short, the neurological surgeon has made tremendous progress these past 10 years.

Auxiliary Specialties

What about the ancillary disciplines? The electroencephalographer, the electromyographer, the psychologist, and the neurological as well as psychiatric social worker have all kept pace, so that they have become part of the neuropsychiatric team.

If this past decade, which has been one of tremendous progress, has revealed anything, it is that the subject of behavior cannot be studied through any one avenue. A good example is the make-up of the panel in the discussion of studies on lysergic acid at the 1955 meeting of the American Psychiatric Association. It contained clinical and research psychiatrists, a neurophysiologist, a psychoanalyst, and even a modern lay writer. The discussion ranged from the effect of the drug on the patient's illness through the nature of the evoked spike potential at the superior colliculus, the blocking of the psychotic reaction by certain drugs, the character of the hallucinations, and the nature of visual imagery in different cultures and in different ages. The last contribution, by Aldous Huxley, was no less significant than the immediately viewable details of the evoked wave on the cathode-ray oscilloscope. Every training center in neurology, psychiatry, and neurological surgery has representation not only from these clinical fields but from such fields as psychology, social work, electroencephalography, electromyography, neurochemistry, and neuropharmacology. This is all part of the team approach to behavior.

The Problem

Most of what I have recounted you already know. Why, therefore, the long introduction? I think that those of us in the field of graduate education in neurology, psychiatry, and neurological surgery find ourselves about in the same position as the engineers and designers of the modern motor car. They have produced a machine that has tremendous horsepower, fast getaway, high top speed, and even excellent braking power. There are tens of thousands of miles of relatively good roads. Yet this wonderful mechanism kills 38,000 and maims hundreds of thousands each year. Now the by-word in Detroit is safety: "How can we build safety into driving?" This is my query about the training of the student in neurology, psychiatry, and neurological surgery: How shall we build safety into his thinking to graduate him a broad, reflective individual? Otherwise, he may mature in a direction never intended by his educators. To return to my analogy of the car, most people drive wisely, but there are enough left to produce an annual holocaust of lives and property. Let us therefore examine the performance of some of our graduates.

The drive for psychiatric training has been so great that centers have been swamped. Some aspirants are able to secure a place, others are not. As a result, a caste system has been set up between those who have obtained psychoanalytic training and those who have not. The latter are merely psychotherapists, with low

prestige rating. Among the psychoanalytically trained, there is the breakdown to those who required analysis for therapeutic reasons as well as for training and those who needed it only for the latter, whatever the distinction may be. To add to the confusion, there are various schools of psychoanalysis whose trainees, who theoretically should have insight, look upon each other with horror. I sat in a New York psychoanalytic group one evening, adherents of the so-called orthodox school, who in referring to a certain Chicago psychoanalyst, a man of international fame, said, "You can't go by what he says. He's no analyst. He's a zoologist." The person referred to had committed the cardinal sin of objectively measuring the effect of emotions on visceral function. Rennie [5] points out that at some centers the intricacies and minutiae of psychoanalytic concepts are the exclusive concern of the residents and all other aspects of psychiatric practice and treatment are ignored. He adds that "this fascination with psychodynamics is often detrimental to the residents who wish to rush into advanced psychotherapeutic explorations long before their judgment is ready to handle the techniques, and long before they have any basic grasp of psychiatric disorders, especially those predicated upon physiological and biochemical, toxic or organic determinants."

The committee on the role of psychoanalysis in psychiatric training [6] of the 1952 conference on psychiatric education, held at Cornell University, Ithaca, N. Y., agreed that "it is not necessary to be psychoanalyzed in order to develop competence as a psychiatrist, including competence in psychotherapy and psychodynamics," a statement applauded by Karl A. Menninger.[6] The committee deemed it highly desirable that some persons be analyzed because of the contribution psychoanalysis may make to the adjustments and skills of some individuals. For those who were to practice the specialty of psychoanalytic therapy, such training was considered a necessity. The committee recognized and decried the "prestige" factor that was all too operative across the country. Furthermore, psychoanalytic trainees during the residency period often are not available to the hospital full time. They develop a divided loyalty and "become so absorbed with what they study at the analytic institute that their interest in neighboring disciplines may suffer." This conclusion was reached by the Group for the Advancement of Psychiatry committee on medical education.[7] A perusal of the new catalogs of several psychiatric training centers indicates a trend toward taking the personal psychoanalytic training out of the residency. Some permit starting it at the end of the third year; others recommend it to those who desire it, but after the training period.

A review of the various symposiums on psychotherapy, whether of neurotic, psychotic, psychosomatic, or so-called behavior disorders, indicates that, where the data are critically controlled, all methods obtain about the same end-results whether the technique is formal psychoanalysis, deep psychotherapy, superficial therapy, insight therapy, or supportive therapy. The measure of a therapist, to quote a well-known analyst, depends first on the maturity of his personality, second on his clinical experience, and last and least on the techniques used. The rigid insistence that only certain therapeutic regimens are valid reflects on the individual who has limited his therapy to one method for reasons known perhaps only to himself or to his analyst.

The attitude toward the physical therapies in psychiatry suffers in two ways: (1) from attack on the procedures by those who never use them and (2) from abuse by those who use the method for unsuitable conditions. Thus several prominent psychoanalysts previously had described electroconvulsive therapy even in the public press as "brutal—savage—an uncivilized attack on the human being." Later this was retracted when the good results of such treatment were reported in overwhelming numbers. Yet the very ease and safety of administration make electroshock therapy a misused weapon in the hands of the nondiscriminating. I have seen adolescent girls, sexually promiscuous as part of a reaction to rejecting parents, treated to the point of deep confusion in order to "change their personalities." Strangely enough, insulin therapy, which is far more difficult to administer and more dangerous to the patient as regards brain damage and actual mortality, is rarely attacked. Is the traditional respect for insulin, the respectable medicine of diabetes, a deterrent to criticism? Certainly insulin therapy is often misused too by those who disdain to use or who will not take the time needed for psychotherapy.

What about the neurologist? He is often so "organically" fixed that he becomes the abuser of the physical therapies. He will deny dynamic factors, avoid working through the background of the functional disorder. He will treat the hysterical paralysis with faradic current, the anxiety state or simple depression with electroshock, completely indifferent as to why the patient developed the disorder. Too often he gets away with the procedure because the condition is self-limited or the ego structure of the patient is such that it quickly becomes compensated again. Or he will simply treat the patient with sedation and reassurance, offering none of the aids that will enable the patient to develop the insights necessary to prevent the next episode. Patients who are traditionally trained to carry a prescription out of a doctor's office or to be given a physical treatment, or those who need the magical word of the doctor, respond to such treatment. Yet is the patient being given the full benefit of our knowledge?

Let us leave the psychiatric scene. What was happening to the neurological patient while the neurologist sat back all these years? The neurological surgeon had moved in, particularly the young diplomate. He would love to "do" brain and spinal cord tumors, craniocerebral trauma; and he is well-qualified to do so, but he does not get the chance. Too many men have been trained, or they cluster in certain areas. There is not enough major surgery to go around. Therefore, with the native aggressiveness that caused him to select the field of surgery, he moves into medical neurology. Every convulsion or hemiparesis is a potential brain tumor, subdural hematoma, or aneurysm. Every paraplegia is a potential cord tumor, every low back pain a possible "disk." Every "stroke" merits a stellate block. Such a philosophy might have merit were not the follow-through an immediate neurosurgical procedure. Instead of a careful history and clinical study, an air study or angiogram follows immediately, or, when the

spinal cord is involved, a myelogram. No half-measure seems to suffice. In some recent board examinations in which I participated, in another city, I saw two patients with paraplegic states who had had myelograms that were "negative from the caudal sac to the foramen magnum." Both were done within 48 hours after the patient had been admitted. The first patient gave a history of clumsy hands, fleeting paresthesias, and speech change. She had nystagmus, scanning speech, and facial weakness. The second had nystagmus, bitemporal pallor, and facial involvement. Their presenting complaint, however, was "difficulty in walking and bladder weakness." No heed was paid to the visual difficulties. Was a myelogram justified? At a recent meeting of a study group in multiple sclerosis, I learned that 40% of all new patients with paraplegic onset had already had laminectomies. What were the surgical indications?

A man whose head was bandaged after ventriculography for headache still complained of the same pain. The ventricular system was normal. His was a tight headache, a casque neurasthénique, occurring always on Monday morning after his usual Sunday night of gambling. He was an inveterate loser, thousands of dollars, and he paid off within the next day. Technically, the ventriculography was perfect: well-placed bur holes, good filling, no infection; but had the neurosurgeon asked the patient about the headache? The entire history on the chart was a few lines: "Intractable headache, no neurological findings. Impression: intracranial pathology, tumor? Ventriculography." This surgeon is a diplomate of the American Board, is attending at many hospitals, and in my opinion is completely honest. He would rather do 100 negative air studies than miss one brain tumor. He wants to help people. But he is mechanically oriented, not broadly grounded neurologically. He disdains psychiatry. He is a good technician, so he does not get into trouble with his numerous negative studies. But is this desirable practice?

Into the area of the most common neurological disease, epilepsy, has moved the electroencephalographer. We are a nation of gadgeteers; we all love mechanisms, and to me nothing is more fascinating than to watch the needles of an ink-writer beat to the drive of the electrical activity of the cortex. I even enjoy the "sing" of the needles as they respond to muscle potentials as the patient swallows. I must also admit a bit of awe, for this is a privileged activity to watch. It is the very life process. Were the patient to die there and then, the needles would become strangely still, there would be no beat, only a straight line to indicate that life, as recorded in the brain, has ceased.

But we must not let emotions, even admiration, carry us away. Is electroencephalography useful in epilepsy or in cerebral localization? The answer is an unequivocal "yes," and I personally utilize the procedure every day. Is it a *sine qua non* in epilepsy? No! In localization? No! A study in 1954 on the reliability of electroencephalographic judgments, conducted by the human resources research office of Stanford University, revealed startling facts.[8] Among the five highly qualified examiners, the percentage of complete agreement on the presence of pathology was only 40; for localization, 30; for combined localization and pathology, 10. How, therefore, can the electroencephalographer working with the record only, merely a tracing of multiple channels, render clinical judgments, designate pathology, and outline drug or surgical treatment—in short, practice neurology? Yet this is done every day across the country.

Let me recount a recent report concerning an 11-year-old boy who had been considered noneducable. He presented the classic picture of the child who had received a brain injury at birth, with the usual subsequent hyperactivity and aggressiveness. He had a defect in the audioperceptive sphere, although visuomotor performance was high. Gross neurological defects were absent. Lately he had calmed down, and the question of special schooling was now raised. Among the battery of tests, an electroencephalogram had been run. Let me quote the report.

> Preliminary psychological studies on this boy indicate that brain injury may be the cause of his learning difficulties at the present time. An electroencephalogram done today corroborated these findings. The tracing showed high voltage 9 to 10 per second basic activity in all areas with spike activity in the right occipital and left temporal areas, more marked during sleep. Spiking indicated brain irritation which could well account for this child's inability to learn reading. The prognosis in such a case is good. We have followed the course of many cases showing this pattern, and have found that the spike activity disappears during the teen years and frequently the child is able to learn normally. The dispersal of the spike activity in the occipital and temporal areas in this brain at the present time suggests healing is already in progress, so we might expect complete recovery in the next few years.
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> In addition to his difficulty with reading, he has a slight aphasia and some distractability and occasionally short periods of hyperactivity. These symptoms are quite commonly associated with the type of spike activity we found in the electroencephalogram. They tend to disappear as the spiking disappears in the record. They are often helped by Sodium Dilantin so we started him on 0.1 grams twice daily.
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> We know from statistics in many hundreds of similar cases this disorder subsides spontaneously and is also helped by medicine. In addition, he needs special schooling. He should have the companionship of children his own age with special attention to speech and reading. He has had very little formal education as he has been in ungraded classes for several years. The child's I.Q. is estimated to be average or above average. The ideal situation for him would be companionship with children his own age with special tutoring in all the subjects in which he has not received instruction in the past.

This was all reported on the basis of an electroencephalographic tracing. The child was not examined otherwise. The parents, happy at the specific diagnosis and recommendations, considered this one tracing more important than the many hours spent by the neurologist, the psychiatrist, and the psychologist working with the details of the organic defect as well as the functional overlay. To the parents the solution lay in the precious bottle of red-banded capsules that the father clutched as though he had the Hope diamond in his hand.

Recently I walked into a hospital ward room where I had been asked to examine a patient. I chanced upon a woman having a Jacksonian fit on the left side of her face and in her left shoulder and arm. She was the patient I was to see. She also had a suggestion of lifting of the right optic disk. A glance at her chart was startling. There was a letter from her doctor in another state appending a series of electroencephalographic reports taken over three years. Each ended with: "Diagnosis—brain tumor, glioma—grade 3—inoperable. Advise x-ray therapy." All this was on the

electroencephalogram report, not in the surgeon's letter. Our angiogram subsequently outlined what appeared to be a small tumor, and at operation a golf-ball sized meningioma was easily lifted out of the Sylvian fissure. Just how a grade 3 glioma, whatever was implied by this, is recognized on electroencephalogram is beyond me, but she had had no care for three years on the basis of this conclusion.

In some parts of this country, neurology, particularly localization and identification of a herniated intervertebral disk, is practiced with an electromyograph and an electrodiagnostic box. Such apparatus is valid for diagnostic aid in certain disturbances, but to carry the use beyond is to change the machine into an electronic Abrams neurocalometer.

The recent efforts of the clinical psychologists to obtain state licensure to practice psychotherapy points up a situation fraught with danger. Therapists are needed everywhere, particularly in the state hospitals and community clinics. Private practice is financially rewarding, but there are not enough psychiatrists to cover the need. In many places psychologists have set up offices for such practice, and they wish licensure. But are they equipped to carry the onus of such care? Will they recognize the organic brain defect or metabolic disorder producing the symptom? What is their legal status if their patient commits murder or is a suicide? May they recommend, not prescribe, a drug such as chlorpromazine, which a drug clerk may sell without a prescription? We train these people in our centers to do therapy. How can we keep them within legal and realistic bounds? Many consider themselves equal to those psychiatrists who have rejected all organic factors in illness and who "avoid" their medical school experience. In short, when the psychiatrists pull out of the framework of medicine, the psychologists draw up and demand equal status in treatment of the emotionally ill. It has required most intensive work by Dr. Paul Huston and his American Psychiatric Association committee on relation with clinical psychology to achieve a five-year moratorium on this drive for licensure. Yet have we not done this to ourselves?

The psychiatric social worker poses a similar problem, although the request for licensure has not yet been officially raised. The group for private practice already is formulated among the social workers and has resourceful, energetic leaders. In some large metropolitan areas social workers are already in the private practice of psychotherapy. Are they equipped? Are they responsible? The same answers hold for them as for the clinical psychologists. Yet the curriculum of the better schools of social work calls for courses in psychobiology, psychodynamics, psychotherapy. These are taught by good psychoanalysts. A personal analysis is considered desirable, and many social workers have had this. They are sincere, dedicated, intelligent people who wish to exercise their professional skills. Shall they practice unsupervised private therapy? I know many psychoanalysts who prefer to refer a patient to a well-trained psychiatric social worker than to a nonanalyzed, however dynamically oriented, psychiatrist. This problem remains unresolved.

Suggested Solution

Why do we have these fringe problems in our three fields, psychiatry, neurology, and neurological surgery? Why are the fringes so large and dangerous? It is because all these fields have ballooned up so rapidly, because there is so much overlap, and because we have not had enough chance to determine how each discipline shall be handled. This will require many more years of maturation. Yet certain wisdoms have come during these 10 years, and the publications of the study groups such as the Group for the Advancement of Psychiatry and the Ithaca conference have recorded them for psychiatry. The symposiums on neurological education similarly have reassessed the requirements of a neurologist who, to quote H. G. Wolff," "must come out sound, sensible, comfortable and reasonable toward problems of disease of the nervous system. Nor will he shrink from dealing with life problems or disturbed personalities."

The time to indoctrinate the future specialists is during the residency period. The trend in training is toward university-centered programs, with rotation through a general hospital, where acute and episodic disturbances may be seen; through a chronic hospital, where the long-term course of an illness may be watched and rehabilitation procedures instituted; and through outpatient services, where the ambulatory patient may be studied and treated. The disturbances attendant to grief, personal loss, injury, surgery, infections, and metabolic disease all can thus be observed and the problems worked through. To appreciate the functional, the neurological trainee spends six months to one year on psychiatry, inpatient and outpatient, while the psychiatric trainee spends six months on neurology and a variable period on medical, surgical, pediatric, and other selected services to see the effect of organic illness on the total person. Basic science courses are given with resident participation, as opposed to lectures and demonstrations to a large group or cram sessions to prepare for the board. The neurological surgeon spends one year on the medical neurology services, where he learns to appreciate the functional as well as the organic syndrome. The Board of Neurological Surgery has just added another year, a fifth, to the training to improve the program. All of these disciplines are taught in the framework of medicine, of medical schools, and of laboratories.

It becomes the duty of those of us interested in graduate education to be familiar with what is going on about us, to be aware of the whys and wherefores of the changes. The deviations in our trainees after they are out in practice stem in part from their experience as residents. Whether we like it or not, they are aping us. Each of our set-ups may be neat, educationally tidy, our students devoted to us, hanging on our every word and acting like religious zealots. We must avoid these provincialisms no matter what our personal prejudices. The years of graduate training must be invested in a solid basis of experience in which all ideologies of proved merit are presented fairly. The resident must be permitted a personal tour in each area to give him perspective. At the end of his residency he will be in a better position to select his personal direction. I have

had neurological residents ask to be excused from the inpatient psychiatric service and the outpatient psychiatric clinic because "I'm not interested in these patients; I'm going to be a neurologist." I have watched a psychiatric resident avoid the ward for acutely disturbed patients because "I'm aiming only toward office psychoanalysis." He also demurred at dissecting a brain because "I can cram up enough the week before to pass the board." Can the neurologist treat epilepsy by pills plus the electroencephalogram, and ignore the patient's emotional problems attendant to the disease, the anxieties and attitudes of the family, the doubts of the employer? Can the psychiatrist treat the patient with the peptic ulcer without knowing the medical course of the disturbance? How will he separate the pain evoked by chronic repressed rage from that produced by a slow, forme fruste penetration? How can a neurological surgeon learn the symptoms and mechanisms of a tension headache in an ambitious, compulsive engineer-designer who was always facing deadlines? Only recently I stopped a proposed air study in this very instance.

Each of our trainees must be educated broadly during the residency training period. The teacher must keep his student's mind open and flexible, permitting entrance of other ideologies, avoiding dogma. He must guide his protégé too, encouraging his reading, giving him personal supervision and discussion time to help him shake down and crystallize his knowledge into working form, so that his mind will not be a storehouse of conflicting ideas. But broadness is the essence. From such a groundwork, plus his reading, plus his personal experience will come a maturity, a basis for his future. This is our responsibility as educators: we must graduate a generation of well-equipped young people who not only are dedicated to their work but will prepare the scene for those who in turn will follow.

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MANAGEMENT OF THE "FROZEN" SHOULDER

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• Immobility of the articulatio humeri sets in most frequently in middle life. It is usually ascribed to some minor trauma, but in reality the cause and exact nature of the derangement are both in doubt.

The treatment recommended here consists of hospitalization, closely supervised therapeutic exercise, and manipulation of the joint at several sessions with the patient under general anesthesia. Complete mobilization must not be expected at the first session but is achieved in stages. The exercise program continues during the intervals of three to five days between manipulations.

Ninety-six patients who had been treated for "frozen" shoulder in this way responded later to a detailed questionnaire and also returned for a physical examination. The results of the treatment were thus evaluated by both subjective and objective criteria. Open operation alone can yield the explanation of this condition, but the closed method here advocated gave results classified as good to excellent by objective as well as subjective criteria, and it was not followed by complications in any case.

"Frozen" shoulder is a term taken from the classic textbook by Codman,[1] wherein he stated this type of shoulder disability is "difficult to define, difficult to treat, and difficult to explain from the point of view of pathology." From our review of the literature and experience with patients with this condition, we believe that, as of now, this term best describes the overall picture. It is to be noted that these patients herein reported on, who were hospitalized, represent only a part of the total number seen, as patients frequently regain full range of motion as the result of a conservative active exercise program.

Etiology

The etiology of frozen shoulder still is not clear. The condition occurs most frequently in middle life, more often in women than in men, and is consistently observed subsequent to prolonged dependency of the upper extremity, whatever the cause. It is well established that arthritis and other metabolic diseases play no significant role, while major trauma was not a factor in any of our cases. As stressed by McLaughlin and Asherman,[2] an injury to or partial rupture of the musculotendinous cuff, while painful, is never accompanied by limitation of passive motion. The reverse is also true; namely, a stiff or so-called frozen shoulder is not associated with a tear of the rotator cuff. The majority of the patients attribute the onset of the con-

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dition to a minor contusion or sprain, but frequently no specific incident is reported to cause the condition. In those patients in whom the shoulder motion became limited subsequent to a coronary thrombosis, there was no significant occurrence except chest pain, with resultant fear of moving the arm.

With the onset of pain and discomfort, the patient limits active use of the arm as far as motion of the shoulder joint is concerned. Gradually the symptoms subside, and subsequently a certain degree of motion returns, to be followed by definite limitation of abduction and external rotation, which limitation persists. Then an effort to increase the range of motion is quite painful. In this connection, we do not subscribe to the term periarthritic personality, since it is our belief that this type of personality, as described in the literature, actually is often the result of the painful, stiff shoulder rather than its cause.

Pathology

We have never directly visualized the pathological changes in a frozen shoulder, as all of our patients have been treated by closed manipulation; hence, a detailed study of the literature was made. We are indebted to McLaughlin [3] for his observations on 24 shoulders exposed at operation just prior to manipulation. He reports that as the arm was manipulated the intra-articular portion of the biceps tendon ruptured in almost every instance, while the subscapularis tendon repeatedly was ruptured to permit external rotation. The synovial lining of the capsule was not found to be actually adherent to the cartilage of the humeral head but was wrapped around it tightly enough to produce an appearance of actual adherence, and a peeling-off effect was observed as the contracture was released. He also found the capsular fold and pouches obliterated by adherence of the synovial surfaces. In contradistinction to the reports by Lippmann,[4] McLaughlin also states that bicipital tenosynovitis confirmed by microscopic study was not encountered as an isolated lesion but only as an extension of the inflammatory process, originating in the shoulder joint. Furthermore, neither inflammation nor adhesions were visualized in the subacromial bursa of the stiff shoulder.

Neviaser [5] surgically explored 10 shoulder joints and manipulated them under direct vision. He described the capsule adherent to the humeral head and adhesions discernible at the reflected fold of the capsule distal to the anatomic neck. On manipulation there was an avascular separation of the capsule from the head that was similar to adhesive plaster pulled from the skin, as well as tearing of the capsule at the reflected fold. Such observations are consistent with Quigley's concept of "checkrein" shoulder.[6] While Neviaser reported little or no hemorrhage subsequent to the manipulation, McLaughlin observed a minimal degree of hemorrhage occurring through all the anatomic structures stretched by the manipulation. Other reports in the literature implicate the subacromial bursa as the primary site of the pathology. Bosworth [7] analyzed 28 consecutive cases of incapacitating shoulder lesions and found the bursa obliterated by dense adhesions that were removed by sharp dissection and the arm then manipulated. In other words, he believed an obliterating subacromial bursitis was the cause of frozen shoulder.

Fowler,[8] in a study made in the dissecting room of 340 shoulders, found one complete rupture of the supraspinatus tendon to every 28 shoulders, an incidence of 3%, while there was an incomplete tear of this tendon in one in every 6 shoulders, an incidence of 16%. He therefore considered this tendon pathology as the primary cause of most stiff, painful shoulders. Simmonds [9] attributed the pathogenesis of frozen shoulder to degeneration of the supraspinatus tendon with focal necrosis. Inflammation results that is similar to that of a reaction to a foreign body; the inflammation is painful and spreads to involve the bursa, which becomes thick and edematous. Simmonds does not indicate local presence of adhesions but states that the capsule and the rotator cuff become thickened and inelastic. DePalma and others [10] dissected 108 shoulder joints in patients in the age group from 18 to 81 years and noted no significant changes relative to the biceps tendon until the fifth decade, when there was thickening, widening, and shredding, which became more pronounced in each subsequent age group. These lesions occurred concurrently with the appearance of degenerative lesions in the musculotendinous cuff. Significant changes in the latter structure first appeared in the fifth decade. DePalma concludes that these were probably degenerative lesions due to wear and tear.

On the basis of these reports, the pathology in a frozen shoulder probably occurs in the capsule, biceps tendon, bursa, peritendinous, and pericapsular structures. With treatment by closed manipulation, an exact knowledge of the pathological changes is not possible. So far, no operations have been carried out, but we wish to emphasize that, if undue resistance to manipulative maneuvers were encountered, an open procedure would be indicated for ablation by sharp dissection of the pathology in any or all of the above areas in order to increase the range of motion of the shoulder joint.

Historical Review

Codman,[11] in a paper on stiff and painful shoulders published in 1906, referred to Putnam,[12] who, in 1882, advocated "an examination under ether with a view to rupture of adhesions as the proper treatment for cases of stiff shoulder." We are indebted to Lapidus [13] for the earliest reference in the literature to shoulder manipulation; namely, a paper by Duplay, who, in 1872, first described periarthritis of the shoulder at postmortem examination in one of his patients, whose shoulder had been manipulated because it was stiff. He was the first to differentiate this condition from true arthritis of the glenohumeral joint. For treatment, he advised manipulation with the patient under general anesthesia, with use of chloroform. A comprehensive review and observations on the function of the shoulder joint were presented by Inman and others.[14]

Treatment

In our opinion, treatment is mandatory for patients with frozen shoulder, otherwise disability may persist for months or years, and in some instances may be permanent. In our hands, the treatment is basically that of manipulation of the shoulder joint in progressive stages with the patient under anesthesia; this is done after an intensive exercise program. While manipulation with the patient under anesthesia has been reported in the literature as dangerous, when it has been carried out in the manner herein described it has proved an effective therapy. If unusual resistance to manipulation is encountered, we would advise an open operation. Such a procedure was not done in this group of patients.

The treatment may be summarized as follows. The patient is hospitalized and the extremity suspended by the forearm from an overhead bed frame. Then, under the direction of a skilled physical therapist, an intensive exercise regimen is instituted. Since the gravity factor is eliminated, these patients, without exception, relatively rapidly exhibit a true increase in the range of shoulder joint motion, which in selected cases can be further supplemented by additional exercises with the patient in the standing position, with the trunk flexed and the arm hanging free. Once the maximal amount of improvement under these conditions is obtained and, after intravenous administration of thiopental (Pentothal) anesthesia, the arm is gently manipulated, the patient lying supine on the table. As previously described,[15] the patient's extremity is well supported by the operator's forearm and hand, the latter grasping the patient's humerus just below the surgical neck, while motion of the scapula is prevented by the operator's other hand. This maneuver prevents fracture of the humerus. The patient's arm is gradually abducted and externally rotated through a range of motion commensurate with the degree of resistance encountered.

We believe it is important that this procedure be done in stages. If an attempt is made at the first manipulation to obtain a complete range of shoulder joint motion, in many instances the patient may experience such pain when he regains consciousness that he will not be able to continue with the exercise program and the condition will revert to its original status or the patient will exhibit even more disability. In the average case the arm is again manipulated three to five days later. Subsequent to each manipulation, the patient is again put back on an intensive exercise regimen, first in bed with the arm suspended and, later, when ambulatory. Plaster casts or arm abduction splints are not utilized. Local injections of procaine and/or hydrocortisone (Hydrocortone) may be employed.

To regain complete shoulder motion it is also necessary to secure normal external rotation and internal rotation because, as shown by McGregor,[16] full abduction is impossible without full external rotation, and likewise complete flexion is not feasible without full internal rotation. We make a definite effort to increase external rotation during the manipulation, but, if there is pronounced resistance to internal rotation, this maneuver is not forced, as in our experience the average patient will progressively increase internal rotation subsequent to a greater range of abduction and external rotation. The average length of hospital stay is 10 days. In occasional instances the patient later returns for 48 hours to have the manipulation repeated. Thereafter the majority of these patients, initially followed at frequent intervals and later at longer periods, have regained normal motion of the shoulder joint and are free from pain.

Our experience with the administration of corticotropin (ACTH) or cortisone, as suggested by Quigley,[15] is limited because our experience without such medication has been so satisfactory. It is important to emphasize that, before any treatment is instituted, the general program is always outlined to the patient and the necessity for his continued and active cooperation is explained and stressed. Suprascapular nerve block, as reported by Milowsky and Rovenstine,[17] has not been of value in our experience with frozen shoulders, probably because the shoulder joint is supplied by five other nerves, as demonstrated in an anatomic study by Gardner.[18]

End-Results

It is our belief that accurate evaluation of end-results is best accomplished by (1) observation over a long period, (2) physical examination of the patient's shoulder, and (3) reporting both the patient's impression—subjective result—and the opinion of the examining physician—objective result. Roentgenograms were obtained in many patients but, except in an occasional instance, did not contribute to the analysis.

Results in Ninety-Seven Patients with "Frozen" Shoulder Who Completed Questionnaire and Reported for Examination

	Subjective, No. of Patients		Objective, No. of Patients	
Excellent	61	82%	75	95%
Good	19		17	
Fair	9		2	
Poor	8		3	
Total	97		97	

We attempted to contact a total of 230 patients who had been hospitalized for treatment. Each patient was sent a detailed questionnaire to complete and was then requested to visit the clinic for an examination. A total of 153 replies was received, and 97 of the 153 patients came to the clinic for examination. Of 56 patients who completed the form but were not examined, the majority were unable to report because of physical disability not related to the shoulder. The others were lost to follow-up because of change of address, and a surprising number had died. This paper is, therefore, based on the results of treatment of 97 patients who were hospitalized because of a frozen shoulder and who, having completed the questionnaire, reported for an interview and physical examination (see table). The subjective results in the 56 patients hospitalized for treatment who answered the detailed questionnaire but did not report for examination were as follows: excellent 37, good 16, and poor 3; therefore, 95% reported excellent or good results. In the entire group of 153 patients, the longest period of observation was nine years, and the shortest was four years, with an average follow-up of six years.

The classifications were made as follows: excellent results—no shoulder symptoms and normal range of shoulder motion; good results—normal shoulder motion and full activities but some occasional discomfort; fair results—recurrent mild shoulder discomfort but able to work and with normal motion at the shoulder joint; and poor results—limitation of shoulder motion and/or constant pain, not able to resume usual activities.

Comment

The difference in objective and subjective results in the patients examined needs explanation. Even though a patient with a severely frozen shoulder and marked loss of function gains full motion after manipulation, as long as there is some residual aching he will subjectively classify the end-result as fair or in some instances good. On the contrary, objective physical examination of these same patients, who have a normal range of shoulder joint motion and what appears to be minimal to no discomfort, results in an increase of the excellent and good results.

It is an interesting observation that, after these patients had regained a full range of motion, an average of three to four months after manipulation, there were no recurrences of frozen shoulder, even though most of them discontinued their exercises at the end of that period. It is also to be noted that neither at the time of the patients' hospital discharge, when they were examined and the findings recorded, nor at the follow-up examination were we clinically able to demonstrate evidence of pathology or signs of tenderness along the bicipital tendon and bicipital groove. With excellent and good results in 82% subjectively and 95% objectively, we believe that closed manipulation of the frozen shoulder is well worthwhile and an effective form of treatment. There were no complications such as fracture of the humerus in this series.

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IDENTIFICATION OF MALIGNANT POTENTIALITIES OF MELANOCYTIC (PIGMENTED) NEVUS

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• *An attempt is made to state the clinical features by which the physician can decide whether a common pigmented mole, appropriately designated as a melanocytic nevus, should be removed.*

At the junction or interface between epidermis and dermis lie the melanocytes whose multiplication and extrusion into the dermis is called junctional activity. Junctional activity is considered to be a necessary prerequisite for the development of melanoma when it arises from a preexisting nevus. Polypoid, dome-shaped, sessile, and pedunculated lesions are usually free from this histological feature, but flat lesions, slightly elevated lesions, elevated lesions with pigmented halos, and verruciform lesions are likely to have junctional activity. These latter types should, if treated at all, be totally excised and examined histologically.

Physicians are questioned almost daily by their patients on the advisability of the removal of pigmented nevi as prophylaxis against malignancy. This paper is an attempt to point out certain clinical features as a guide to the proper selection of lesions that may degenerate into malignant melanomas and to the separation of these from the many others commonly found on the patient's skin that do not possess this potentiality. The clinical diagnosis of pigmented nevi of the skin has always been a perplexing problem even for experts.[1] This is so because so many lesions not of nevic origin may be pigmented and, therefore, clinically mimic the pigmented nevus. Furthermore, pigmented nevus is merely a descriptive generic term covering a host of nevic lesions of diverse tissue origin. It is obvious, therefore, that the practitioner faced with the problem of the diagnosis of a cutaneous pigmented lesion must first determine that the lesion is of nevic origin and then decide just what type of pigmented nevus it is.

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Types of Pigmented Nevi

All pigmented nevi may be divided into three groups (table 1): (1) those lesions in which the actual pigment-forming cell (the melanocyte) constitutes the essential part of the lesion; (2) those lesions in which the melanocyte is present and physiologically active but only as an incidental part of another type of cellular organization of the nevus; and (3) mixed lesions, in which the essential structural elements are melanocytes as well as other tissue-forming cells (table 1). Only those nevi whose basic structural elements are melanocytes (groups 1 and 3) are capable of giving rise to malignant melanomas.[2]

Because the pigment-forming cell is called the melanocyte, I propose, for purposes of classification, that a lesion belonging to group 1 be designated a melanocytic nevus,[3] just as one would call a nevus in which the basic structural elements were blood vessels a vascular nevus The second group of nevi obviously includes many diverse pathological lesions representing hamartomatous developments in various cutaneous structures, but in each of which pigment formation is merely a secondary or associated feature. A partial list of these lesions includes seborrheic verruca, epithelial nevus, senile lentigo, pigmented papilloma, ephelis, and pigmented skin tag. In this group might also be included trichoepithelioma, adenoma sebaceum, and multiple benign cystic epithelioma, when these lesions show pigment formation. The third group comprises almost any composite of nevoid melanocytic aggregations with various nevoid developments of other tissue components of the skin. Perhaps the most common of these is the hairy pigmented nevus, in which both melanocytic and follicular hair-forming structures form the fundamental parts of the lesion.

Non-Nevic Pigmented Lesions

As indicated above, the diagnosis of the melanocytic nevus is often complicated by the fact that there are other lesions of non-nevic origin that also have pigment. Becker [4] and Swerdlow [5] have listed many of these lesions, the most important of which are, in my experience, pigmented basal cell carcinoma, pigmented neurofibroma, hemangioma, histiocytoma cutis, sclerosing hemangioma, chronic perifolliculitis, senile keratosis, Bowen's keratosis, scar, foreign-body granuloma, pigmented granular cell myoblastoma, verruca vulgaris, epidermal cyst, subepidermal hemorrhage, xanthoma, multiple hemorrhagic hemangioma of Kaposi, glomangioma, and supernumerary nipple. In addition, Becker [4] and Swerdlow [5] have emphasized the difficulty, at times, of differentiating between benign melanocytic nevus and malignant melanoma.

To confound the clinician further, it is necessary to point out that the melanocytic nevus itself may lack pigment when its constituent cells are physiologically inactive as far as melanogenesis is concerned. It is therefore necessary that this structure be differentiated from numerous nonpigmented lesions. This paper deals primarily with the different clinical features of the melanocytic nevus. It is incumbent on the clinician, for the purposes of differential diagnosis, to be familiar with the clinical characteristics of those lesions, mentioned above, with which the melanocytic nevus is so frequently confused.

Development of Melanocytic Nevi

The melanocyte originates in the primitive neural crest in the embryo. During early embryonic life [6] it wanders out into those tissues that, in the mature animal, have pigment (melanin) forming properties (table 2). Special nests or collections of these cells at the epidermodermal junction of the skin eventually become activated (probably by autonomic, emotional, and endocrine [7] factors), usually in postuterine life, to form the common melanocytic nevus, while foci of these cells in the corium similarly develop into pigmented melanocytic nevi called the Mongolian spot and the blue nevus of Jadassohn. Melanomas may arise in any tissue where the melanocyte is present, but as far as the skin is concerned, they seem with rare exceptions to originate either in melanocytic nevi when these have junctional activity or as primary malignant lesions in flat pigmented spots called malignant lentigos. This paper deals exclusively with the problem of melanocytic nevi on the skin and will not consider pigmented lesions on the mucous membranes or other tissues.

It is now well known that melanocytic nevi are exceedingly rare at birth but that their numbers increase rather rapidly until puberty. Although new melanocytic nevi may continue to appear from time to time after puberty, they do so at a decreasing rate each decade.[8] Not infrequently, these lesions arise in crops or sprays, indicating the simultaneous stimulation of many of these foci at a critical stage in the individual's life. When the lesions first develop, they are pigmented macular spots, but after months or years they become elevated and acquire a variety of surface characteristics. The macular lesions are usually of two histological types: (1) those lesions in which histologically the skin appears normal except for increased pigmentation and increased number of "clear cells" (melanocytes) at the epidermodermal junction, often with slight hypertrophy of the epithelial rete; this is the lentigo (inactive junction nevus), and it may have

TABLE 1.—*Pigmented Lesions of the Skin**

Nevoid			Non-Nevoid
Melanocytic	Nonmelanocytic	Mixed	
Junction nevus	Seborrheic verruca	Hairy pigmented nevus (melanocytic and follicular elements)	Pigmented epithelioma
Compound nevus	Epithelial nevus	Vascular pigmented nevus (melanocytic and vascular elements)	Sclerosing hemangioma
Juvenile melanoma	Pigmented skin tag	Verruciform nevus (melanocytic and epithelial elements)	Senile keratosis
Intradermal nevus	Trichoepithelioma		Multiple hemorrhagic hemangioma of Kaposi
Lentigo	Vascular nevus		Glomangioma
Mongolian spot	Ephelis (freckle)		Supernumerary nipple

* These lists are not complete but give important examples.

potientialities for acquiring junctional activity; and (2) those lesions that histologically show clumps or aggregations of nevus cells apparently dropping off or being extruded from the epidermis into the underlying corium at the epidermodermal junction. This process is called junctional activity, and the lesion in which it is found is called a junction nevus, or, to contrast it with the lentigo, an active junction nevus.

Older, more mature, or more fully evolved lesions are apt to be thickened and slightly elevated, and the histological picture changes so that many cords or bands of nevus cells are aggregated in the corium, with only an incomplete connection with the epidermodermal junction. This lesion is called the compound nevus. With further aging, the lesion usually becomes still more elevated. When examined histologically, its mass is found to be composed largely of nevus cells in clusters or bands within the corium, having no detectable connection whatsoever with the epidermodermal junction. This is the so-called intradermal nevus, and it is presumed that this is the fully mature lesion. In middle-aged and older individuals, the melanocytic mass in the corium tends to be reduced and to be replaced by a fibrillary substance, while the cells at times assume a spindle shape, suggesting a neurofibroma or a schwannoma.[9] At times a lesion evolves rapidly in childhood, with histological cellular features of hyperplasia and anaplasia, and may be mistaken for a malignant melanoma. In actuality this is a rapidly growing compound nevus, designated as juvenile melanoma. In spite of its name, this is nearly always a benign lesion.[2]

TABLE 2.—*Stages in the Evolution of the Melanocyte, a Labile and Unstable Cell Type, in Man*

- In Utero
  - Wanders from primitive neural fold to
    - Epidermodermal junction
    - Uveal tract
    - Occasional foci in corium
    - Rarely in pia mater about the medulla
    - Mucosal surfaces
- Postuterine Life
  - At epidermodermal junction melanocyte forms
    - Normal pigment in skin
    - Latent foci that later may develop into
      - Melanocytic nevus (common pigmented nevus)
      - Melanoma
  - Uveal tract melanocyte produces
    - Normal pigment
    - Melanoma
  - Occasional foci in corium form
    - Mongolian spot
    - Blue nevus of Jadassohn
    - Melanoma (rarely)
  - Rare foci in pia matter produce
    - Pigmented meninges
  - Activation of mucosal foci produce
    - Occasional pigmentation
    - Occasional melanoma

Junctional Activity

Junctional activity is found in the junction nevus, the compound nevus, the juvenile melanoma, and those intradermal nevi with remnants of junctional activity. Absence of demonstrable junctional activity is a feature of the intradermal nevus, the lentigo, and the blue nevus. Since junctional activity is the generally accepted histological prerequisite for malignant potentiality, the problem for the physician is to translate these histological criteria into clinical ones that will enable him to predict the histological findings from the clinical appearance of the lesions. Numerous papers on the histology of these lesions are available, but their clinical appearance seems very often to have been treated rather obscurely. It would seem that these studies were drawn primarily from histological material with a frequently inadequate later attempt at clinical recall.

In an earlier study [3] I adopted the opposite approach. Over 200 melanocytic nevi were carefully examined clinically, and then histological features were determined. This was followed by a classification of the clinical features as related to the histological details. It seemed that one could, with a reasonable degree of accuracy, predict the histological nature of these lesions from certain clinical characteristics. The more important of these features are shown in table 3.

The typical junction nevus usually appears early in life and frequently develops in crops. The lesion is flat or only very slightly elevated. It often has a rather angular, irregular, or fuzzy border, and the pigment distribution is at times uneven, so that the lesion appears speckled or mottled. It later evolves into a compound and eventually into an intradermal type. This evolution progresses most rapidly in lesions on the head and neck, while the rate of maturity is lowest in those on the palms, soles, and genitalia, at which sites the lesions may persist as junction types throughout life. Fortunately, the junction nevus has little or no malignant potentiality until puberty, and even after puberty only a few junction nevi eventually become malignant.

TABLE 3.—*Clinical Features of Melanocytic Nevi*

Junction Nevus	Compound Nevus
Early life, frequently in crops	Many years' duration; usually prepuberty or older
Flat or only slightly elevated	Almost invariably elevated, often with macular ring or halo about periphery
Border fuzzy, pigment speckled	Clinical variants
Evolves into compound type	Smooth
Apt to persist on the palms, soles, and genitals as junction type throughout life	Verruciform
Has little or no malignant potentiality until puberty	Keratotic
Only a very few junction nevi persisting after puberty become malignant	
Juvenile Melanoma	**Intradermal Nevus**
Usually before puberty	Develops from preexisting compound nevus
Rapid growth	Many years' duration, usually late puberty or older
Usually elevated	Almost invariably elevated
Usually not much pigment; often reddish or violescent in color	No macular ring or halo
Clinical variants	Clinical variants
Smooth	Verruciform
Verruciform	Keratotic
Keratotic	Smooth, elevated, with or without hair
	Flabby, fibrotic, sessile or pedunculated

The compound nevus is apt to be of several months' or many years' duration and is usually found in the preadolescent years or during early maturity. It is almost invariably elevated and is often surrounded by a pigmented macular ring or halo. There may be surface clinical variations of this lesion; it may be smooth, verruciform, or occasionally capped by a keratotic surface. The juvenile melanoma almost always appears before puberty. It grows rapidly, so that the changes become obvious within weeks or at most within months. It is almost universally elevated and usually does not contain much pigment. It often has an inflammatory reddish or violescent color. The surface of the lesion may be smooth, verruciform, or

keratotic. The intradermal nevus develops from a preexisting compound or juvenile melanoma. It is usually of many years' duration and most frequently appears in late puberty or adulthood. It is almost invariably elevated and is seldom surrounded by a macular ring or halo. Numerous clinical varieties include keratotic lesions, verruciform lesions, smooth dome-shaped lesions, and flabby, fibrotic, sessile, or pedunculated nodules or tags.

It has been useful for diagnosis to classify melanocytic nevi by clinical types into the following categories: flat lesions, slightly elevated lesions, elevated lesions with halos, verruciform lesions, polypoid lesions, sessile lesions, pedunculated lesions, and dome-shaped lesions. Most flat lesions are histologically either lentigos (inactive junction nevi) or active junction nevi. As one would expect, the active junction nevus is found in the younger patient, whereas the lentigo is found more frequently in the older patient. Macular lesions are seen less frequently on the head and neck because the melanocytic nevus matures most rapidly in this region, while they are relatively more common on the distal portions of the extremities because the rate of maturity is slowest there. Slightly elevated nevi and elevated nevi with halos are predominantly lesions of the compound type and should be so considered until proved otherwise. Few of these lesions are fully mature intradermal nevi in that no junctional activity is detectable.

The verrucous nevus is a pigmented lesion with a digitate, elevated surface. Most of these are compound nevi or intradermal nevi with residual sites of junctional activity. These most commonly appear on the trunk, and it should be assumed clinically that these are lesions with junctional activity. The remaining clinical types of lesions; namely, the sessile lesion, the polypoid lesion, the pedunculated lesion, and the dome-shaped lesion, are mostly mature intradermal nevi without significant junctional activity.

Removal of Nevi

In the clinical evaluation of the histological type of melanocytic nevus, one should consider: (1) the clinical morphology of the lesion, (2) the age of the patient, (3) the age and rapidity of development of the lesion itself, and (4) its association with other lesions of a similar type. I feel that this clinical information, when correctly interpreted, can serve as a useful guide for the clinical management of these lesions. It is obvious that lesions with suspected junctional activity, such as the flat nevus, the slightly elevated nevus, the nevus with a halo, and the verruciform nevus, should not be treated with superficial destructive measures. If they are to be treated, they should be excised and examined histologically. Malignant melanoma is exceedingly rare in childhood, and, though it is much more common in the adult, it is a relatively infrequent malignancy of the skin. On the other hand, pigmented nevi are commonplace, and it has been estimated that there are an average of 20 melanocytic nevi on each individual. The chances of a lesion becoming malignant are approximately 1 in 1 million [10]; therefore, the validity of the dictum that melanocytic nevi should be removed routinely for prophylactic purposes has never been settled.[10] I feel, however, that the facts set forth in this paper will help to contribute some information to this question. Certainly only those lesions suspected of junctional activity need be removed prophylactically. Furthermore, probably only those lesions in sites subject to trauma should be treated in this fashion. Inasmuch as lesions on the distal extremities, especially those on the palms and soles, mature at the slowest rate, the removal of lesions from the palms and soles may be indicated, although these may be so numerous at times that routine removal of them becomes more or less impractical. On the other hand, those lesions that clinically appear to have no junctional activity need not be subjected to prophylactic removal. In order to be sure that malignancy is not already present in a nevus at the time of removal, all such specimens should be examined histologically. This is important because, in spite of the pronouncements in the literature to the effect that the partial removal of a pigmented nevus gives rise to malignancy, no lesion histologically proved benign has ever been recorded as degenerating into a malignant melanoma after part of it has been removed.[10]

I have dealt exclusively with the removal of nevi showing no clinical suggestion of malignant degeneration. Such signs should always be looked for. These include a sudden change of color of the lesion, a recent infiltration of pigment into the surrounding normal skin, the appearance of inflammation and ulceration, and the development of satellite adenopathy. If any of these signs occurs in any type of pigmented nevus, the lesion should be widely excised surgically and examined histologically. I feel that if these rules are followed the physician will have a reasonably secure and accurate guide upon which to base his indications for the management of melanocytic nevi.

Summary

On the basis of a simple classification of pigmented nevi in which each type is named by the essential cell constituting its structure, the term "melanocytic nevus" is the appropriate designation for the common pigmented mole. The melanocytes at the epidermodermal junction, through a process of multiplication and extrusion into the corium called junctional activity, give rise to the common melanocytic nevus with all its clinical variations. Junctional activity is considered to be a necessary prerequisite for the development of melanoma when it arises from a preexisting nevus. Those melanocytic nevi classified as flat lesions, slightly elevated lesions, elevated lesions with pigmented halos, and verruciform lesions are apt to have junctional activity, while polypoid, dome-shaped, sessile, and pedunculated lesions are usually free of this histological feature. Lesions that on the basis of their clinical features may have junctional activity should, if treated, be totally excised and examined histologically.

1825 Pine St. (3).

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PHYSICAL AND PHYSIOLOGICAL CLUES FOR DIAGNOSING ECZEMA

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Eczema is not a disease but a descriptive term that connotes itching associated with heat, redness, swelling, vesiculation, and, at times, oozing and crusting. There are multiple causes for this syndrome, ranging from an allergic contact dermatitis to a functional neurodermatitis. Perhaps the most complex of the eczemas, certainly the type most difficult to understand and most difficult to treat, is atopic eczema. In this study we will point out that, in addition to the eczematous lesion, per se, there are definite physical and physiological characteristics in the person who develops atopic eczema. In other words, the person susceptible to atopic manifestations is, in a sense, different from an estimated 85 to 90% of the population of the United States. As practitioners of medicine, recognition of this type of person at any time from infancy through adulthood is of great value in the understanding and diagnosis of the eczema. It is of equal importance in enabling one to predict the potential ability to develop eczema or other evidences of atopic allergy, such as asthma and hay fever.

Atopy is not characterized by one etiology and one treatment. It is a syndrome with many facets. In our evaluation of a particular patient we range etiologically from the allergic to the psychosomatic; from the winter problems of ichthyosis to the summer problems of the sweat retention syndrome; and from urticaria to eczema. We will evaluate the person susceptible to atopic eczema step by step. First, there is an abnormally high incidence of atopic diseases (hay fever, asthma, and eczema) in such a person and in his family. In the patient himself, any one or several of the distinct chronological phases of dermatitis may have occurred: infantile eczema, childhood eczema (from 6 to 10 years of age), or the adolescent or adult form of the disease (from 13 to 30 years of age).

Physical Characteristics

On physical examination, the patient with a frankly eczematoid or lichenified atopic eruption is not difficult to recognize. There are other components, however, that even the patient with unerupted atopic dermatitis possesses. We have all been impressed with the pallor of these persons, especially over the central face and bony prominences. This pallor is due to a constant cutaneous vasospasm. It has often been said that this type of person has a tired look about the eyes. This look of fatigue may be due to a hyperpigmentation that is particularly common around the lower eyelid (fig. 1A). A fold of skin of the lower eyelid deserves special attention. There is a small extra line or groove, sometimes called a Mongolian pleat, of the lower lid that is present at birth and is easily identified in the infant. Its recognition in older persons may be more difficult because of the many lines appearing about the eyes (fig. 1*B*).

The skin of the person susceptible to atopic eczema is dryer than average. Occasionally a frank ichthyosis is present. This scaling and chapping is most pronounced on the extensor surfaces of the extremities where the density of the sweat glands is low. Such scaling is usually absent in the flexural areas where the density of sweat glands is higher and where emotional sweating constantly hydrates the stratum corneum (fig. 1C). Another indication of this type of skin is seen in the follicular hyperkeratosis on the extensor surfaces of the extremities, which is known as keratosis pilaris (fig. 1*D*). Such skin is easily chapped and split in the winter, when the relative humidity of the atmosphere falls below 50%. When such a climatic situation arises, the stratum corneum in nonsweating areas loses water faster than it can be replaced by the water of diffusion from below. A dehydrated stratum

• *The patient with atopic eczema is likely to have a personal and family history of hay fever, asthma, and eczema. He has a type of pallor caused by constant cutaneous vasospasm and a labile cutaneous vascular reaction pattern manifested by certain responses to stroking and to intradermal injections of drugs. His blood pressure is low but rises into the hypertensive range in the cold pressor test. His skin is dry, is easily chapped, and manifests sweat retention in various ways. He is more liable than most people to juvenile cataract.*

This type of patient gives more immediate positive reactions to skin tests than does the average person and frequently shows a pustular reaction at 48 hours to a patch test with 5% solution of nickel sulfate. His emotional reactions are likewise characteristic of a certain personality pattern. These facts aid in the recognition of atopic dermatitis and determine the course of treatment.

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corneum containing less than 10% water is a brittle layer that will split and crack if it is flexed or bent.[1] Although the climate or proper skin care may have eliminated the dry skin, other evidence of the predisposition to chapping is seen in the palms. These contain an increased number of fine lines or markings in most persons susceptible to atopic eczema (fig. 2*A*).

The cutaneous vascular physiology in these persons demonstrates many paradoxes that are, as yet, not completely understood. We have mentioned the pallor of vasoconstriction. However, the susceptible person has a cutaneous vascular reaction pattern that is as labile as his personality. When the skin of these persons is essentially normal and without lichenification, it may still develop cholinogenic urticaria due either to emotional or to heat stimuli. Such whealing is caused by a hypersensitivity or a hyperreactivity to acetylcholine. It is easily identified clinically by its small papular wheal with a large surrounding flare.[2] The itching associated with such a whealing mechanism is severe and, for the most part, more intense than the itching of histaminic urticaria. Such cholinogenic urticaria may sometimes be the first cutaneous abnormality in these persons. The scratching of these hives may induce the itch-scratch mechanism in the sites of predilection of the disease such as the face, neck, and antecubital and popliteal areas.

When one strokes the normal skin of a person susceptible to atopic eczema with a pointed blunt instrument, the usual triple response of Lewis and Grant[3] is elicited showing, first, a red line confined to the line of stroke; second, the axon-reflex flare or red reaction about the red line; and, finally, a wheal replacing the red line and limited to the line of stroke. When histamine is injected intradermally into the susceptible patient, the axon-reflex flare of the triple response may not develop. Allergists have also noted the absence of a flare about positive intracutaneous wheal reactions to protein allergens. In general, one may say that, because of vasoconstriction, the axon-reflex flare about the red line or wheal tends to be less in a clinically normal person susceptible to atopic eczema than in a person not susceptible.

This reaction, however, is altered even further when the skin is only mildly abnormal. The red line of vasodilatation is replaced by a white line of vasoconstriction. At first the axon-reflex flare is still present, but, if the skin is more severely involved, the white line of vasospasm is the only vascular response that results from stroking the skin (fig. 2*B*). This is an excellent diagnostic and prognostic sign, since we feel that this white line is the first abnormality to appear and the last to leave when the susceptible person is having difficulty with his skin.

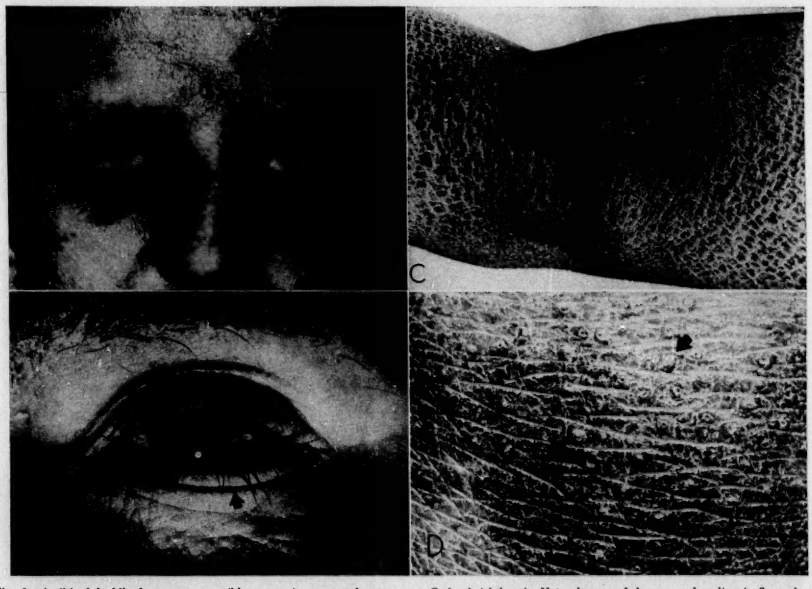

Fig. 1.—*A*, "tired look" of person susceptible to atopic eczema due to hyperpigmentation around lower eyelid. *B*, small, extra groove of lower eyelid (arrow) commonly seen in person susceptible to atopic eczema. *C*, frank ichthyosis. Note absence of dryness and scaling in flexural region. *D*, keratosis pilaris, in which follicular hyperkeratoses (arrows) are pronounced.

Physiological Characteristics

There are other paradoxical aspects of atopic vascular physiology in addition to this general cutaneous vasospasm. It has been shown[4] that, although the blood pressure of these susceptible persons is low, their hyperreaction to the cold pressor test is almost in the hypertensive range. They also demonstrate a

swifter rate of cooling in a cool environment and a delayed rate of warming in a warm environment when compared with normal persons. From the laboratory standpoint several additional tests can be made concerning the vascular responses of susceptible persons. Williams [5] has shown that the intramuscular administration of histamine to patients with atopic dermatitis produces a greater increase of skin temperature at the sites of predilection for this disease than is produced in the control group of normal persons.

One might postulate that the vasoconstrictive phenomenon in the person susceptible to atopic eczema is the result of either an increase in some circulating epinephrine-like substance or an increased sensitivity of the cutaneous blood vessels to normal amounts of such a substance. Yet, when one introduces epinephrine into the skin of the susceptible person, a normal vascular response occurs. However, a paradox develops when acetylcholine is injected into the skin of a susceptible person presenting a white line when the skin is stroked. Instead of producing the usual red reaction locally at the site of injection, due to the direct action of the drug on the blood vessels, these persons develop vasoconstriction or a "delayed blanch" reaction [2b] (fig. 2*C*). The spread of this delayed blanch resembles the response to epinephrine. It consists of white pseudopods of vasoconstriction not associated with whealing and is reminiscent of the lymphatic spread of a vasoconstricting substance. Surgical sympathectomy does not alter this delayed blanch reaction nor does a locally or intravenously administered anesthetic agent. The total understanding of such a paradoxical reaction to intradermally injected acetylcholine has yet to be reached. However, it has been shown that, if a tissue is deficient in physiological amounts of acetylcholine, the addition of more acetylcholine will produce vasoconstriction rather than the usual dilatation.[6] Whether the skin of susceptible persons is actually deficient in physiological amounts of acetylcholine is not known.

The sweat retention phenomenon is always a problem with these persons. The heat-rash diseases resulting from sweat retention, such as miliaria rubra, miliaria pustulosa, and miliaria profunda, are all easily produced. In the susceptible person, these diseases of sweat retention certainly complicate the picture and may precipitate the itch-scratch cycle. As one might suppose, a hot humid climate would be poorly tolerated and tend to produce prickly heat. On the other hand, sweat retention is an ever-present problem since the susceptible person will sweat with emotional stimuli in the flexural areas of the extremities, which are the sites of predilection of this disease.

A peculiar complication of atopic eczema is the development of cataracts in about 10% of cases.[7] These cataracts begin in the posterior pole of the lens, in contrast with the usual senile cataracts or radiation cataracts that begin in the anterior pole. In general, the more severe the dermatitis the more likely is the development of these cataracts. Every person, therefore, with atopic dermatitis should have a slit-lamp examination by an ophthalmologist at regular intervals.

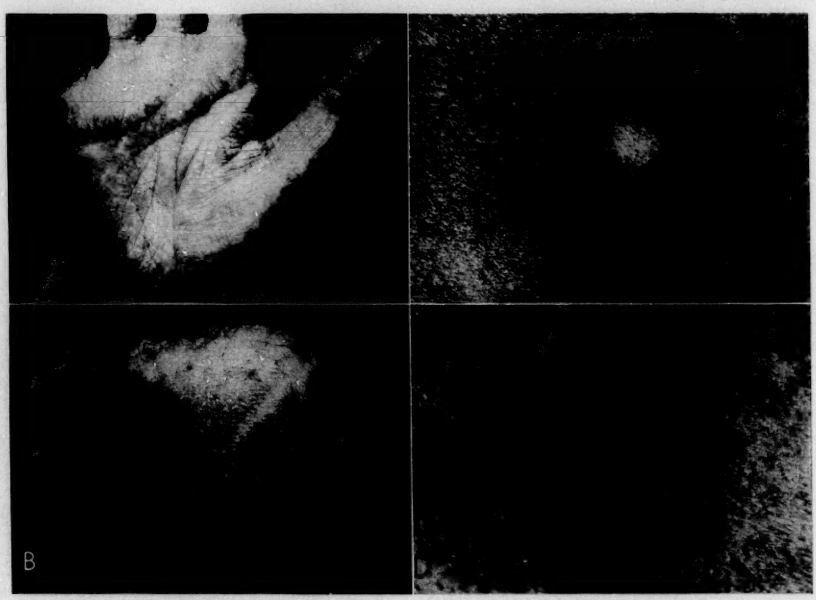

Fig. 2.—*A*, palm of person susceptible to atopic eczema, containing increased number of fine lines and markings. *B*, white line of vasospasm produced by firm stroking of skin of forehead in patient with atopic eczema. *C*, "delayed blanch" reaction to intradermally injected acetylcholine in person susceptible to atopic eczema. This resembles normal response to epinephrine. *D*, pustular reaction to patch test of 5% solution of nickel.

So far, we have been discussing those factors that make the person who is susceptible to atopic eczema different and have stressed that the atopic problem is complicated. We have not made any attempt to consider two important etiological mechanisms in the production of this disease; that is, the allergic problem and the emotional problem. Knowledge of both of these mechanisms aids in the diagnosis and evaluation of the patient with atopic eczema. Atopy is associated with an abnormally high incidence of positive immediate wheal reactions to scratch or intracutaneous skin tests with common protein antigens.[8] Positive patch-test reactions to eczematogenic allergens are of normal or even subnormal incidence in the person with atopic eczema,[9] with one exception. A person with atopic eczema will frequently show a pustular reaction at 48 hours to a patch test of a 5% solution of nickel (fig. 2*D*). This is another reaction pattern that we believe to be of value in diagnosing atopic eczema.

In recent years several excellent psychosomatic studies have dealt with patients with atopic eczema.[10] The patterns of their personalities are being better understood and can be evaluated by competent psychiatric examiners. Allergic and emotional factors, while of importance, are lengthy subjects in themselves, and it is not within the scope of this study to discuss them. We must emphasize, however, that such information should be included in the total evaluation of the person susceptible to atopic eczema in order to understand the problem fully.

Conclusions

All physical and physiological factors characteristic of the person susceptible to atopic eczema must be considered by the attending physician, be he general practitioner, allergist, ophthalmologist, psychiatrist, or dermatologist. Our greatest success in handling these patients has resulted from our program of acquainting them with the complexities of their disease. Our constant theme is that persons susceptible to atopic eczema are different physically and physiologically. It is only when all the complexities that atopy connotes are completely understood by the physician and his patient that therapeutic success can be achieved.

2 Maynard St. (Dr. Lobitz).

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HIGH-SPEED CINERADIOGRAPHY AND ELECTROCARDIOGRAPHY

A NEW METHOD FOR THE STUDY OF HEART DISEASE IN HUMANS

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• Motion pictures of the heart as it appears in fluoroscopy can be made by using a camera in connection with an image-intensifying tube. The pictures can be greatly slowed for study by various means, so that the events of one second take almost 14 seconds to view on the screen. Detailed analysis of the movements of the heart shadow can be made with reference to other aspects of cardiac function, since the electrocardiogram, ballistocardiogram, phonocardiogram, or any other record transmissible to an oscilloscope, can be photographed in synchronism with the heart shadow.

According to Reynolds,[1] efforts to make motion picture recordings of fluoroscopic images date back to the ideas of John MacIntyre, who first experimented along these lines in 1896, only one year after Roentgen discovered the x-ray. In 1928, Reynolds[2] published a discussion of the technical problems that faced early workers in cineradiography. In 1936, Janker[3] successfully obtained motion pictures of the fluoroscopic images of the esophagus, stomach, duodenum, colon, joints, the beating heart, and organs during deglutition and respiration. He mentioned the possibility of recording an electrocardiogram simultaneously with the cineradiogram but apparently did not actually attempt such a recording. More recently Ramsey and associates[4] as well as Wegelius[5] have obtained excellent cineradiographic films.

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Read before the American College of Physicians, Los Angeles, April 19, 1956.

In 1951, Fields and co-workers [6] described a technique for making high-speed cinematograms of the beating heart of a dog with a simultaneous electrocardiogram. This technique of high-speed cine-electrocardiography has been of great value in various experimental cardiac problems, especially those of coronary artery disease. Kjellberg,[7] while making an angiocardiogram, electrically marked an electrocardiogram at the instant of exposure in order to determine at what point in the cardiac cycle the angiocardiogram was photographed. However, the simultaneous recording of high-speed cineradiograms and electrocardiograms in humans has not been previously reported. The purpose of this paper is to describe the method used in this laboratory for the recording of high-speed cineradiographic films of the heart simultaneously with an electrocardiogram superimposed on the same film.

Previous studies [8] on the myocardial contractility of dogs by means of high-speed cinematography have indicated the great value of analysis of the motion of the cardiac border. With the development of a technique allowing high-speed cinematography of cardiac fluoroscopy with a superimposed electrocardiogram, more extensive study can be made, and it is expected that a valuable tool will be achieved.

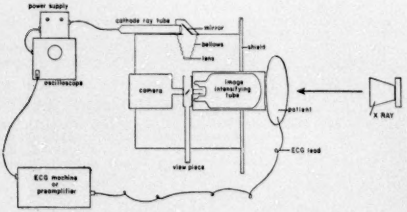

Fig. 1.—Block diagram of the physical relationships of the apparatus for simultaneous recording of cineradiogram and electrocardiogram.

Equipment

The basic x-ray equipment needed is a 100-kv. machine built by the North American Philips Company. A Philips image intensifier, with a green fluoroscopic screen approximately 5 in. in diameter and a viewing image 0.5 in. in diameter, is mounted in a cylindrical metal housing. Pictures are taken with a Bell & Howell "Eyemo" 35-mm. motor-driven camera at speeds up to 55 frames per second. A Summicron 2-in. focal length, f2.0 lens is used. We have utilized Kodak experimental Linagraph Ortho film. After the 35-mm. film is developed, it is reduced in size to a 16-mm. film. Reduction of the film from 35 mm. to 16 mm. facilitates playback projection and yields films of better definition and resolution than would be obtained by the use of 16-mm. film in the original photography.

The electrocardiogram is obtained by tapping the output of a Sanborn Viso-Cardiette and leading it to a Dumont oscilloscope, model 304-a. The output of the oscilloscope is then led to a Dumont 3 RP-7 long-persistence cathode ray tube, which is driven by a high-voltage power supply adequate for the requirements of the tube as outlined by the manufacturer. Placement of the oscilloscope between the amplifier of the Sanborn Viso-Cardiette and the cathode ray tube

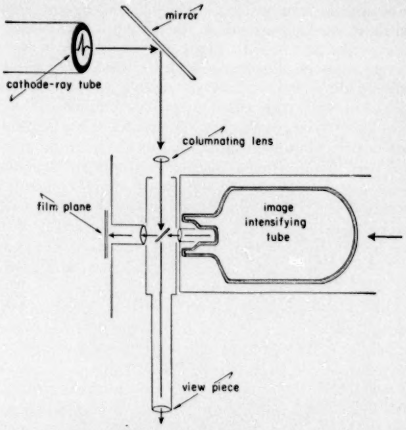

Fig. 2.—Detailed diagram of the optical system for superimposing the electrocardiogram on the fluoroscopic image of the heart.

permits monitoring of the electrocardiogram and allows fine adjustments such as for sweep rate and amplitude. The electrocardiographic image from the long-persistence cathode ray tube is introduced into the camera

Fig. 3.—Enlarged cineradiogram, from a single 35-mm. frame. The left lateral border of the heart is seen in the posteroanterior position. The heart is in systole. The QRS complex appears as an after-trace and the T wave is about to be written.

lens by an optical system of lenses and mirrors, so that, when the shutter of the camera is open, the electrocardiographic image and the intensified fluoroscopic image are superimposed on the camera film. Figure 1 is a diagram of the physical plan of the apparatus showing the relationships of the various components

to each other. Figure 2 is a detailed sketch of the optical system for transmission of the electrocardiographic image into the camera. Figure 3 is an enlargement of a single frame from one of our films.

Procedure

The patient is placed in front of the image-intensifier tube and the desired view of the silhouette of the heart with the superimposed electrocardiogram is obtained under fluoroscopic control by looking through the view piece. Measurements of the thickness of the chest are taken and the appropriate kilovoltage and milliampere settings are obtained from a graph in the usual manner. The x-ray dosage that the patient receives has been monitored and found to be a negligible radiation dosage. The desired electrocardiographic lead is selected by appropriate placement of the exploring unipolar electrode on the body of the patient, that is, a lead is chosen that most closely represents the area to be studied. For example, if trouble is suspected at the apical area of the heart, the patient is rotated to such a position that the apical portion of the heart is seen best on fluoroscopy and the electrode exploring the precordium is placed as close as possible to the apical silhouette without actual interference with the fluoroscopy. The electrocardiogram is next adjusted for the proper brightness and focus. The camera is then run at 32 to 55 frames per second. Subsequently, by double printing the negative and running the playback projector at 8 frames per second, the motion is slowed almost 14 times. Thus, the events that were recorded during one second of exposure will take almost 14 seconds to view on the screen.

Detailed analysis of motion of the cardiac borders can be made by the use of a Vanguard motion analyzer, which permits vertical or horizontal displacement measurements in units of 1/1,000 of an inch. Exact correlation between the electrocardiogram and the movements of the border can be made. When making such fine measurements of the movement of the cardiac border, one must be very careful to distinguish rotational movement of the heart from the systolic shortening of the diameter of the heart due to muscular contraction.

Other Uses of Technique

It is possible to modify the apparatus so that simultaneous cardiac catheterization pressures and angiocardiograms, phonocardiograms, or ballistocardiograms may be recorded instead of electrocardiograms. The recording of a ballistocardiogram would require more extensive modification of the apparatus than when a phonocardiogram is used but would appear feasible and might give valuable information on the nature of some components of the ballistocardiogram that are not completely understood.[9] The apparatus could also be modified to record simultaneously a phonocardiogram and an electrocardiogram.

Since the fundamental action of the heart is that of a mechanical pump, it is to be expected that detailed analysis of the motion of the heart plus an electrocardiographic record made simultaneously can lead to basic diagnostic and physiological information. For example, fluoroscopic demonstration of good contractility without ballooning of an infarcted myocardial area represented by QS waves is significant evidence that the QS may be a "mural-type" QS wave. It has been established experimentally that the presence of a QS wave typical of myocardial infarction on an electrocardiogram does not necessarily represent complete death of the myocardium.[10] A myocardial infarct manifested electrocardiographically by a mural-type QS wave may contain significant amounts of viable tissue capable of good contractility. This is in contrast to the complete death of muscle with no viable myocardium capable of contraction that is also manifested by a QS wave. This latter type is referred to as the "cavity" QS wave of complete infarction. Mural-type QS waves have been recorded in both dogs and humans with coronary artery disease.

Additional examples of the possible uses of the technique of cineradiography with simultaneous electrocardiography are in studies of the genesis of certain cardiac murmurs, of splitting of sounds, and of gallop rhythms. Such studies appear to be worthy of consideration.

Comment

It is felt that, as techniques are improved by the development of more powerful image intensifiers, faster lenses, better cameras, and more sensitive film, more information will be obtained by this procedure. High-speed cinerecording of simultaneous fluoroscopic, electrocardiographic, and other images is a promising technique by which valuable diagnostic information on heart disease can be obtained. Moreover, the procedure does not subject the patient to any inconvenience.

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HYPERTENSION ASSOCIATED WITH PREGNANCY

INCIDENCE AND TREATMENT, WITH PARTICULAR REFERENCE TO PROTOVERATRINE

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• *The apparent incidence of hypertension in pregnancy among the patients in one hospital from 1941 to 1944 was 87 per 1,000; the comparable figure for the period 1951 to 1954 was 47. General improvement in prenatal care and limitation of sodium intake in particular are considered as plausible explanations.*

The course of pregnancy in nine patients with toxemia, eight with hypertensive vascular disease, and four with both conditions is analyzed with special reference to the effects of protoveratrine. This drug, injected intravenously in doses of 0.12 mg. or administered slowly by intravenous infusion, gave prompt reductions of blood pressure and was found to have certain advantages over other hypotensive drugs now in use. Four case histories give details illustrating the effects of oral as well as parenteral administration of protoveratrine.

Convulsive toxemia of pregnancy (eclampsia) is now infrequently seen at the Boston Lying-In Hospital; hypertension associated with pregnancy and nonconvulsive toxemia, however, continues to be a problem of management. It is the purpose of the first part of this study to compare the recent incidence of hypertension associated with pregnancy with the incidence of a period 10 years before. The second part of the study presents our experience with the use of protoveratrine in the treatment of hypertension associated with pregnancy.

Protoveratrine, an alkaloid from Veratrum album, has been found useful as an antihypertensive drug in all types of arterial hypertension.[1] It contains two alkaloids, A and B, which are similar in action when given parenterally but differ by one oxygen atom. Protoveratrine A accounts for most of the effect when protoveratrine is given by mouth, since 10 to 20 times as much protoveratrine B is required to produce a similar action on the blood pressure. This difference in action is considered to be a result of a difference in absorption from the intestinal tract.

Method of Study

The incidence of hypertension associated with pregnancy was determined for a three-year period from 1941 to 1944 in only the Boston Lying-In Hospital and compared with the same period 10 years later from 1951 to 1954. The classification of hypertension and proteinuria includes principally patients with hypertensive vascular disease and a few patients with renal disease and hypertension. Preeclampsia, mild, was diagnosed when proteinuria (1 gm. per 24 hours or less) appeared during pregnancy and the blood pressure was elevated but did not exceed 160/100 mm. Hg. When the blood pressure was greater than 160/100 mm. Hg, with proteinuria greater than 1 gm., or when there were symptoms, the preeclampsia was classified as severe.

From a number of similar cases, 21 patients with hypertension and pregnancy have been observed carefully and have been treated with protoveratrine alone or in combination with bed rest and dietary sodium restriction. These patients were seen both in the house service of the Boston Lying-In Hospital and in consultation in the private pavilion. They were followed as inpatients and outpatients, and protoveratrine was administered both intravenously and by mouth. In those patients in whom it was thought desirable to reduce the blood pressure promptly, protoveratrine was given by intravenous injection and followed by an intravenous infusion over a period of 12 to 24 hours. Other patients with hypertensive disease were given protoveratrine by mouth three or four times a day in an effort to control their blood pressure during the course of pregnancy. The patients were classified as follows: (1) toxemia of pregnancy: patients in whom there was no previous history of hypertension and in whom the hypertension disappeared within one month after delivery; (2) hypertensive vascular disease: patients in whom hypertension was present before pregnancy; and (3) hypertensive disease and toxemia of pregnancy: patients with presumably a combination of 1 and 2, in whom the hypertension exceeded the early pregnancy blood pressure and proteinuria with or without symptoms appeared.

Results

Analysis of the figures in table 1 indicates an increase in the number of patients classified as having hypertension and proteinuria. This is thought to be due to the change in criteria of diagnosis for the years 1951-1954, so that some patients who would have been classified as having preeclampsia in 1941-1944 were classified as having hypertensive vascular disease in 1951-1954. The striking change, however, was the decrease in the number of patients with preeclampsia from 1941-1944 to 1951-1954, and this change is statis-

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TABLE 2.—*Summary of Diagnosis and Treatment of Twenty-One Patients with Hypertension and Pregnancy*

Patient	Age	Wk. of Pregnancy When First Seen	Diagnosis	Blood Pressure Level, Mm. Hg.	Proteinuria	Retinopathy	Treatment: Dietary Sodium Restriction	Treatment: Weight Reduction Diet	Treatment: Bed Rest	Treatment: Protoveratrine I.V., Mg.	Treatment: Protoveratrine Oral, Mg.	Fetal Viability	Comment
Toxemia													
R. G.	35	33?	Toxemia	165/100	3+, 200 mg. per 100 cc.	0	1+	1+	1+-0	0	1.35, 3 i.d.	+	Cesarean section aftr 5 wk. of treatment; uneventful pregnancy 1 yr. later
M. O.	28	36	Toxemia, mild post partum	170/90	1+, 150 mg. per 100 cc.	0	1+	0	1+	0.11	1.25, 3 i.d.	+	Headache and convulsion 5 days post partum; blood pressure rose to 230/120 mm. Hg; positive family history of hypertension
E. R.	37	34	Toxemia	250/140	4+, 1,000 mg. per 100 cc.	0	1+	1+	1+	0.1, infusion	0	0	Edema 3+; delivered day after entry of macerated fetus; good control of blood pressure
M. H.	29	35	Toxemia	150/100	3-4+, 1.2 gm. per 24 hr.	0	+	0	+	0	0.8-0.9, 3 i.d.	+	Labor induced after 1 wk., since proteinuria persisted
E. D.	20	36	Eclampsia	200/100	4+, 1,500 mg. per 100 cc.	0	+	0	+	0.12, infusion	0	0	Unconscious on entry; protoveratrine and ether used to control blood pressure and convulsions
I. G.	38	36	Toxemia	160/90	1+, 50 mg. per 100 cc.	0	+	0	+	0.11, infusion	0.75	+	Relief of nausea and headache; cesarean section
R. W.	32	34	Toxemia	210/110	4+, 2,000 mg. per 100 cc.	0	+	0	+	0.1, infusion		+	Control of hypertension; cesarean section
C. G.	37	35	Preeclampsia; history of toxemia 14 yr. before, with blood pressure of 200/100 mm. Hg	190/100-105	3+, 300 mg. per 100 cc.	0	+	0	+	0.12, infusion	0	+	Relief of headache and dizziness; spontaneous delivery without complications
Hypertensive Vascular Disease													
A. D.	21	16	HVD*, severe	240/160	1+	2+	+	0	0	0	0.5-0.7, 6-7 i.d.	0	Sympathectomy, 1951, for severe hypertension with advanced retinitis; improved after starting protoveratrine therapy; aggravation of hypertensive disease with pregnancy with hematuria and papilledema; fetal death at 28 wk.; died 7 wk. later of dissecting aneurysm
L. A.	28	26	HVD; CVA† three yr. before	170/130	1+, 40 mg. per 100 cc.	0	+	0	0	0	1.2-1.3, 3-4 i.d.	+	No apparent aggravation of hypertension during pregnancy; protoveratrine given orally last 2½ mo. of pregnancy
P. O.	33	31	HVD	160/90	0	0	+	0	0	0	0.75-0.85, 4 i.d.	+	Known transient hypertension for 2 yr.
B. R.	31	24	History of high blood pressure, 1st pregnancy	140/85-95	0	0	+	0	0	0	0.8, 3 i.d.	+	Family history of hypertension; uneventful 3rd pregnancy on regimen of sodium restriction and phenobarbital
H. B.	30	24	HVD	200/120	1+	0	+	0	0	0.12	0.5-0.6, 4 i.d.	0	Headache, photophobia, and fetal death at 30 wk.; high blood pressure known for 7 yr.; toxemia of pregnancy 1 yr. before; patient cooperated poorly
D. W.	35	32	HVD	180/130-160/100	1+	0	+	0	0	0	0.7, 4 i.d.	+	Protoveratrine given orally for 5 wk. until uneventful delivery; blood pressure post partum 160/90 mm. Hg
R. P.	31	8	HVD; history of toxemia with fetal death	140/90	0	0	0	+	0	0	0.75, 2 i.d.;	+	Normal delivery
	32	12		150/90	0	0	0	+	0	0	0.6-0.7, 3 i.d.	+	Normal delivery
M. B.	31	33	HVD	210/140	1+, 30 mg. per 100 cc.	0	+	0	+	0.12=0.08	1,2, every 6 hr.	+	First known hypertension in 1946 during 2nd pregnancy; tourniquets, digitalis, morphine given during first 10 hr.
H. C.	39	24	HVD; history of toxemia	180/100	0	0	+	0	0	0	1.0, 3 i.d.	+	Ante partum hemorrhage; placenta praevia resulting in premature delivery; premature baby died
Hypertensive Vascular Disease and Toxemia													
A. R.	24	32	HVD and toxemia	240/160	4+, 700 mg. per 100 cc.	2+	+	0	+	0.12	0.8, 4 i.d.	+	Transient hypertension noted at 2 mo.; premature baby delivered by section but died 2 days later
H. C.	34	30	HVD and toxemia	190/110	4+	0	+	0	+	0.11	1.7=2, 4 i.d.	+	Much reduction of proteinuria on treatment
A. P.	28	32	HVD and toxemia	160/100	2+	0	+	0	0	0	0.75-0.9, 4 i.d.	+	Positive family history of hypertension; 2 mo. post partum blood pressure 180-160/90-95 mm. Hg without proteinuria
D. L.	42	36	Obesity 350 lb. (158.7 kg.); hypertension noted 3-4 wk.	250/150	4+, 750 mg. per 100 cc.	0	+	+	+	0.12	1.5, 3 i.d.	+	Cerebral thrombosis post partum; hypertension persisting post partum but less severe

* Hypertensive vascular disease. † Cerebrovascular accident.

tically significant (significance ratio=12.4). The number of patients with eclampsia in each period was small but also showed a decrease for the period 1951-1954. The over-all incidence of hypertension of all types associated with pregnancy declined from 87 per 1,000 deliveries to 47 per 1,000 deliveries.

In table 2 are presented the pertinent data on the 21 patients in this study. Of the 22 babies born, since one patient had two pregnancies, there were 4 stillbirths and 18 live births.

Toxemia of Pregnancy.—There are eight patients classified as having toxemia of pregnancy, one of whom had quite severe convulsions and who was one of two "unregistered" patients in the study. Her case will be presented as a representative example of severe toxemia of pregnancy with convulsions.

CASE 1.—A 20-year-old gravida 1 para 0 (E.D.) entered the hospital during the 36th week of pregnancy. There was a history of a gain of 36 lb. (16.3 kg.) in weight during this pregnancy, mostly during the last trimester, which had been progressive during the two weeks before entry. This period was associated with general malaise, and vomiting developed two days before admission. She had not been seen for several weeks

TABLE 1.—*Comparison of the Incidence of Hypertension Associated with Pregnancy During Period from 1941 to 1944 with Period from 1951 to 1954*

	1941-1944	1951-1954
Mothers Delivered	8,057	6,915
Hypertension and proteinuria	42	92
Preeclampsia		
Mild	574	181
Severe	70	46
Eclampsia	15	5
Total	701	324
Incidence per 1,000	87	47

by a doctor. The day of admission she awoke at 2 a.m. with a bout of vomiting. Shortly thereafter she had a seizure for the first time and was taken to another hospital, where she was given magnesium sulfate, 5 cc. of 50% solution, and had four more convulsions. At this point she was transferred to the Boston Lying-In Hospital at 5 a.m.

On physical examination the patient was semicomatose, pale, and quite edematous. Blood pressure was 150/100 mm. Hg, with a pulse of 90 per minute. Ankle, tibial, and sacral edema was noted. Only 20 cc. of urine was passed during the first six hours in the hospital, with a specific gravity of 1.028 and a 4+ proteinuria (1,500 mg. per 100 cc.). The urine contained many white blood cells, red blood cells, and some bacteria, with many hyaline and coarsely granular casts. The hemoglobin level was 14 gm. per 100 cc., and the hematocrit was 41%. The leukocyte count was 22,000 per cubic millimeter. She was placed in an oxygen tent in a dark, quiet room. She was noted to be hyperreactive to any stimuli, such as needle injections or blood pressure determinations. Her entry medication consisted of phenobarbital sodium, 240 mg. given at 7 a.m., which resulted in some quieting. However, between 10 a.m. and noonday there were five generalized convulsions. The rectal temperature was 104 F (40 C). At this time 0.12 mg. of protoveratrine was given by intravenous injection and was followed by an intravenous infusion of 5% glucose and buffered water containing 0.5 mg. of protoveratrine at a rate of 15 to 20 drops per minute, which was sufficient to control the blood pressure. The highest blood pressure just before the injection of protoveratrine was 200/100 mm. Hg. In 15 minutes the blood pressure was 130/80 mm. Hg and remained there for the next 12 hours. Ether was administered by mask for 14 minutes in an effort to control the convulsions beginning 10 minutes after the protoveratrine injection. By 1 p.m. the patient was relaxed, with only occasional minor, localized, convulsive movements. The fetal membranes were ruptured, but this did not result in active labor and a cesarean section was done 18 hours after entry, resulting in the delivery of a stillborn fetus. After delivery the blood pressure remained normal at 130/80 mm. Hg, and during the next two days a good diuresis resulted and the patient voided 3 liters of urine on the third day. Before discharge an additional 6 lb. (2.7 kg.) of weight was lost.

This patient presented the classical features of severe toxemia of pregnancy, as evidenced by edema, hypertension, and convulsions. As is the case in some of these patients, the degree of hypertension was relatively mild at the time of entry. However, the blood pressure did increase as the convulsions became more frequent, and, after administration of protoveratrine by intravenous injection and infusion, the blood pressure was maintained at a normal level. It was necessary, however, in this patient to administer ether for a short time to control the convulsions. These measures

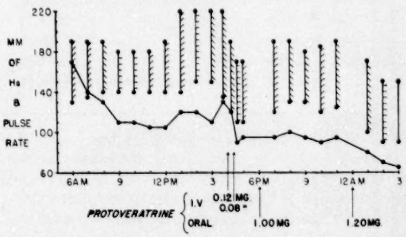

Fig. 1 (case 2).—Change in blood pressure and pulse rate after administration of protoveratrine by intravenous injection followed by oral medication as indicated.

enabled the patient's condition to be stabilized so that definitive therapy regarding her pregnancy could be carried out.

Hypertensive Vascular Disease.—There were nine patients with hypertensive vascular disease who were considered to have hypertension before pregnancy and in whom it was aggravated during pregnancy. An illustrative case of this will be presented in which hypertensive heart disease was a prominent feature.

CASE 2.—A 31-year-old gravida 5 (M.B.) entered the hospital on Dec. 28, 1952, during the 33rd week of gestation, because of dyspnea and vaginal bleeding. She had been first found to have high blood pressure seven years before during her second pregnancy, during which time she gained 32 lb. (14.5 kg.) in weight, had considerable headache, and was said to have convulsions during labor. Five years before entry, at the age of 27, she was told by her doctor during the third month of the third pregnancy that her blood pressure was elevated. She followed a "no added" salt diet during this pregnancy and gained only 16 lb. (7.3 kg.). The systolic blood pressure was said to be 200 mm. Hg during this pregnancy. Three years ago, during her fourth pregnancy, she developed paroxysmal dyspnea during the seventh month, at which time her blood pressure was said to be 185 mm. Hg systolic. Shortly thereafter she was admitted to the hospital in shock and was treated for premature

separation of the placenta (abruptio placentae), following which a macerated fetus was delivered. The blood pressure following this was 180/130-110 mm. Hg, and there was mild proteinuria.

She was well until two months before entry in the sixth month of pregnancy, when her blood pressure was stated to be 250 mm. Hg systolic. Four weeks before entry, she developed nocturnal dyspnea that persisted until entry. During this pregnancy she had gained only 4 lb. (1.8 kg.) in weight. Physical examination on entry revealed a dyspneic woman with slight cyanosis of the lips and fingers. She was quite apprehensive but had no pain. The blood pressure was 200/150 mm. Hg, pulse 170 per minute, and respiration 48 per minute. The cervical veins were distended, and moist rales were heard over the lower part of the chest on each side. The heart was thought to be enlarged, and there was a loud apical diastolic third sound. There was 1 + edema of the ankles but no sacral edema.

On entry tourniquets were applied, oxygen and morphine were given, and 1 cc. of a mercurial diuretic was given intramuscularly. Intravenous digitalization was attempted with 2 mg. of lanatoside C. The patient improved, and the pulse dropped to 100 per minute, with not much change in blood pressure but with symptomatic improvement. However, her pulse rate increased again to 130 per minute, and the blood pressure was 220/130 mm. Hg, with aggravation of the dyspnea. She was then given 0.12 mg. of protoveratrine intravenously, with only a moderate fall in blood pressure in 20 minutes to 190/125 mm. Hg, at which time she was given 0.08 mg. more of protoveratrine intravenously, with a further decline in 25 minutes to 170/110 mm. Hg and a pulse of 90 per minute (fig. 1). The apical gallop disappeared, and the respiratory distress was relieved.

Following this she was placed on therapy with orally given protoveratrine every six hours, in dosage of 1.0 to 1.2 mg., with a good fall in blood pressure to 120-100/70-90 mm. Hg one to three hours after the administration of drug. The pulse rate ranged from 65 to 90 per minute. The patient continued to do well and felt much improved. Electrocardiograms taken on entry and 15 days later are illustrated in figure 2.

On Jan. 4, 1953, labor began spontaneously, and because of a prolapsed umbilical cord an internal podalic version was accomplished and a normal baby was delivered. Post partum, and consistent with the diagnosis of hypertensive heart disease, the blood pressure was moderately elevated at 180/110-120 mm. Hg, with a pulse of 80 per minute, and the patient was asymptomatic. Protoveratrine therapy was discontinued shortly after delivery. The patient was admitted to the hospital in May, 1953, for sterilization, at which time the blood pressure was 200/140 mm. Hg on entry. During hospitalization the blood pressure during the last four days ranged from 140-150/90-100 mm. Hg as checked by the nursing staff.

This patient had hypertensive vascular disease and hypertensive heart disease with congestive heart failure at the time of her last pregnancy, which was successfully treated with sodium restriction and protoveratrine, administered intravenously and orally. It was of interest that she had no significant proteinuria, despite the temporary aggravation of her hypertension. The conventional treatment with tourniquets, oxygen, and digitalis, plus a mercurial diuretic, resulted in some transient improvement, but protoveratrine greatly facilitated the reduction in pulse rate and blood pressure that relieved her respiratory distress.

Hypertensive Disease and Toxemia of Pregnancy.—Four patients were considered to have evidence of hypertensive disease before or early in pregnancy, and there was thought to be an aggravation of this during the last trimester of pregnancy, which is best described as toxemia of pregnancy. Two cases will be presented to illustrate this group.

Case 3.—A 34-year-old female (H.C.) was admitted to the hospital on April 24, 1953, because of high blood pressure and slight proteinuria while in the seventh month of pregnancy. The family history was positive, in that the father died in uremia at the age of 64. The first pregnancy nine years previously terminated in a normal delivery, although in the last week of pregnancy the blood pressure was noted to be 180 mm. Hg. During the present pregnancy the patient was examined at approximately 20 weeks, at which time the weight was 145 lb. (65.8 kg.) and the blood pressure was 148/74 mm. Hg. The urine was free of protein. She was checked at monthly intervals, and the blood pressure was normal. At approximately 31 weeks the weight was 161 lb. (73 kg.), the blood pressure was 180/100 mm. Hg, and there was heavy proteinuria. On her entry to the

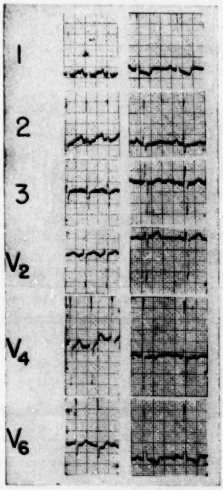

Fig. 2 (case 2).—Electrocardiogram taken the first day (first column) and again 15 days later (second column), demonstrating slowing of heart rate from 150 to 75 per minute. The tracings are consistent with hypertensive heart disease

hospital, blood pressure was 190/110 mm. Hg, with a pulse rate of 74 per minute. Shortly after this the first dose of protoveratrine, 0.11 mg., was given intravenously, and within 10 minutes the blood pressure was 140/80 mm. Hg, with a pulse rate of 56 per minute. During the first 24 hours the proteinuria amounted to 9 gm. Protoveratrine was administered by mouth in increasing dosage for the first three days to an average dose of 1.7 to 2.0 mg. four times a day. The response of blood pressure and pulse is illustrated in figure 3. The patient was kept at rest in bed during this time, and the decrease in proteinuria was noteworthy. During this period of four weeks, the patient had three episodes of nausea and vomiting resulting from protoveratrine. Phenobarbital was given for three days early in the course but did not seem to have any particular effect upon the blood pressure. After four weeks it was decided that the baby had matured sufficiently, so that there was a good possibility of obtaining a live baby at the time of cesarean sec-

tion, and that further delay might result in fetal death. Cesarean section was, therefore, carried out on May 21, 1953, and a live baby was delivered. Seven days after cesarean section, a 24-hour urine specimen indicated 1 gm. of protein per 24 hours. When the patient was seen again three months post partum, the urine was free of protein and the blood pressure was 160/90 mm. Hg.

This patient had a family history of hypertensive disease and had had a previous toxemia of pregnancy. During her second pregnancy hypertension and proteinuria appeared at about 31 weeks, and it was thought wise to attempt to continue the pregnancy so that the fetus would be more mature and have a better chance of survival. The control of hypertension with protoveratrine was gratifying, and, while no reason is offered for this effect, the decrease in proteinuria during observation was significant.

Case 4.—A 24-year-old gravida 1 para 0 (A. R.) had her last menstrual period on Sept. 8, 1954. Examination on Nov. 15, 1954, indicated an early intrauterine pregnancy and a blood

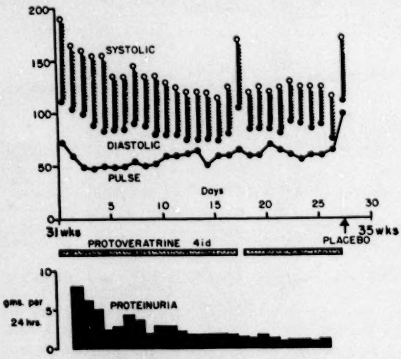

Fig. 3 (case 3).—Daily average of hourly blood pressure readings and pulse rates. The decrease in proteinuria is noteworthy, as is the rise in blood pressure at the time of omitting protoveratrine or substituting a placebo.

pressure of 110/80 mm. Hg. The urine examination was normal. At about the same time, a preemployment physical examination indicated a slightly elevated blood pressure of 140-160/100 mm. Hg. However, on Nov. 30, when seen again, her blood pressure was 110/80 mm. Hg and the urine was normal. On Dec. 28, or after three and a half months of pregnancy, the blood pressure was found to be elevated at 180/120 mm. Hg and later was noted to be 140/120 mm. Hg during the office examination. She was seen twice in the next two months, and each time the blood pressure was 140-180/110-120 mm. Hg. The urine examination was normal. On March 21 she was again examined, at which time the blood pressure was 240/160 mm. Hg and a large amount of protein was noted in the urine. She had had headache and blurred vision of the left eye for three days.

The patient was admitted to the hospital the same day, and the blood pressure was 210/140 mm. Hg, with a pulse of 80 to 90 per minute. The patient seemed slightly lethargic but was able to answer questions. One small hemorrhage and exudate were noted in each eye, but there was no definite choking of the disks. Protoveratrine was then administered intravenously in a dose of 0.12 mg. This was followed by an abrupt fall in blood pressure, and in 15 minutes it was 130/80 mm. Hg and the heart rate had fallen to 44 per minute. This was at 4:45 in the afternoon. One-half hour later an infusion of 1,000 cc. of glucose in water containing 0.5 mg. of protoveratrine was started intravenously. This was continued at the rate of from 10 to 40 drops per minute depending upon the pulse rate and blood pressure response, which were taken each 15 minutes by the nurse. Blood pressure was maintained within the range of normal or at borderline hypertensive levels for the remainder of the night (fig. 4). The patient was slightly nauseated and vomited on one occasion during the night but stated she felt much relaxed.

By the following afternoon the amount of protein in the urine was still large, equaling 750 mg. per 100 cc. Laboratory studies soon after entry indicated a hemoglobin level of 15 gm. per 100 cc., nonprotein nitrogen level of 26 mg. per 100 cc., total protein level of 6.8 mg. per 100 cc., and a hematocrit of 46%. The urine contained 4 to 5 white blood cells, 2 to 3 red blood cells, and an occasional cast. The patient was given a diet containing about 200 mg. of sodium.

The day after entry cesarean section was done, and a 2 lb. (907.18 gm.) fetus was delivered without trouble. Later that night, the blood pressure rose to 210/140 mm. Hg and an infusion of protoveratrine was again given with a good return of blood pressure to normal levels. The blood pressure was held at about 120/80 mm. Hg, with a pulse rate of 50 per minute. On March 26, four days post partum, oral therapy with protoveratrine was started in dosage of 0.7 mg. every eight hours and there was good response, with the blood pressure returning to normal limits for a period of five hours after the oral dose, at which time the blood pressure rose again and the protoveratrine therapy was repeated. The vision continued to be a bit blurred in the left eye. By March 31 the headaches had completely disappeared, the vision was better and at 5 p.m. the blood presure was 130/80 mm. Hg and the pulse was 66 per minute. The following morning at 9 a.m., before an intravenous pyelogram, the patient's blood pressure was up again to 200/120 mm. Hg and the pulse was 106 per minute. At that time, she had not received protoveratrine for 18 hours. The pyelogram was normal, and there was good excretion of the phenolsulfonphthalein dye. A dose of protoveratrine, 0.8. mg., four times a day, resulted in normal blood pressure readings most of the time except for just before the next dose of protoveratrine, when the readings of blood pressure were higher. Reserpine, 0.5 mg. twice a day, a 200 mg. sodium diet, and protoveratrine, 0.8 mg. four times a day, was the discharge regimen.

was normal, and there was good excretion of the phenolsulfon-

Two weeks post partum, her blood pressure was found to be controlled while she was taking protoveratrine and reserpine, but, in the course of 12 hours after omitting the protoveratrine, it ranged to about 170/110 mm. Hg. The urine was free of protein, and the ocular fundi were now clear. Two months later the blood pressure was at the upper range of normal, 140-150/90 mm. Hg. She was still on reserpine therapy, 0.75 mg. a day, and protoveratrine had been omitted three weeks before.

In this patient, transient hypertension was noted in the first trimester and became persistent in the second trimester. Severe hypertension with proteinuria and headache appeared during the eighth month. It was thought wise to interrupt the pregnancy because of the severity of the hypertension, which was associated with retinal abnormalities. Protoveratrine therapy was useful, both intravenous and oral, in controlling the hypertension before and after delivery. In retrospect, the use of protoveratrine given orally with rigid sodium restriction might have been advisable as soon as sustained hypertension was established.

Comment

The etiology of the hypertension associated with pregnancy remains obscure. The hypertension itself, however, seems indistinguishable from the hypertension seen in the various medical conditions that are not associated with pregnancy. The hypertension may be mild, moderate, or severe, and in the severe form it is similar to the severe type of disease seen in hypertensive vascular disease. The severe form usually disappears rather promptly after the interruption of pregnancy, in the course of a few days or weeks. We have been unable to detect any objective difference by examination of the blood pressure, the heart, or the ocular fundi to distinguish the hypertension associated with pregnancy from the usual hypertension not associated with pregnancy.

The decrease in the hypertension associated with pregnancy over a 10-year period in this hospital is heartening. The most likely explanation for this decrease in incidence is thought to be improved prenatal care, especially the dietary restriction of sodium during pregnancy, which has become so much more effective in the last 10 years. Other possibilities to account for this decrease, such as a change in the criteria of diagnosis or a change in the policy of referral of patients with preeclampsia to this hospital during a war period, have been considered but thought to be unlikely explanations for the observed drop in incidence of hypertension associated with pregnancy. The significant decrease in the incidence of hypertension of pregnancy in this study illustrates the necessity for a control group being observed concurrently with the treated group in the evaluation of any treatment of hypertensive vascular disease.

Hypertension of all types frequently responds to simple measures such as bed rest and sodium restriction, and the hypertension of pregnancy is no exception. When edema is great, a 5 to 8 lb. (2.3 to 3.6 kg.) weight loss in 24 hours is occasionally observed by simply placing the patient on a regimen of complete bed rest without additional therapy. This again emphasizes the necessity of caution in evaluating the various forms of therapy recommended in this disease.

There are times, however, when it is desirable to give drugs that will act promptly to reduce the blood pressure and decrease the pulse rate. Protoveratrine is a suitable drug for this type of problem, since it can be given intravenously and the effect obtained within 15 minutes. The drug can then be given over a period of hours by infusion to control blood pressure and pulse rate, and this allows time for a decision about the obstetric needs of the patient. We prefer to give the drug by infusion under these circumstances, since one can regulate the administration more effectively by infusion than by subcutaneous or intramuscular injection. It is noteworthy that, after receiving the drug by intravenous injection for severe hypertension, the patient frequently describes a relaxed feeling and shows a tendency to sleep. Reducing the blood pressure [2] or pulse rate [3] has been known for many years to decrease the incidence of convulsions if not to prevent them from occurring in toxemia of pregnancy.

It may be necessary to administer a drug for days or weeks for the control of hypertension associated with pregnancy, and protoveratrine can usually be given effectively by mouth if one gives careful attention to the regulation of the individual dosage of the drug. The drug can be given two to four times a day in order to obtain the desired effect upon the blood pressure without the undesirable effect of nausea or vomiting. Vomiting is understandably objectionable to the patient when it occurs but should not necessarily be an indication for discontinuing administration of the drug but merely for more careful regulation of the dosage. The vomiting does provide a safety factor, since vomiting begins in sufficient time to prevent serious overdosage. We found no serious sequelae to occur from protoveratrine administered by mouth to one patient who received 50 mg. by mouth, or 75 times the prescribed dose.

The dose in general ranged from 0.5 to 1.5 mg. every six to eight hours, or three or four times a day. The dose is increased by 0.1 or 0.2 mg. per dose or per day, depending upon the urgency for a hypotensive effect. The method of trial and error, therefore, is the only means by which one can arrive at a suitable oral dosage, and this is best done in the hospital. The amount of the individual dose for the different doses during the day may vary by 0.1 to 0.5 mg.

Protoveratrine itself has been known for 60 years, and its administration is a modification of the use of Veratrum, which is an old treatment of toxemia of pregnancy that was used almost 100 years ago to control puerperal convulsions. The following excerpt is taken from an article by Baker [4] published in the *Southern Medical and Surgical Journal* of 1859.

> I have had but one opportunity to test its powers in puerperal convulsions, from the fact that I have met but one case occurring after delivery had been accomplished and I have always withstood the temptation to administer it before in consequence of a strong belief, if not certain conviction, that its action would arrest uterine contraction.
>
> About two months ago I was called with my friend, Dr. Terry, to see a woman suffering with puerperal convulsions. We found labor advancing, and though the convulsions were severe and frequent, we determined to leave its accomplishment to nature, and to endeavor in the meantime to check or control the convulsions by the inhalation of chloroform, there being certain symptoms which seemed to contra-indicate venesection. Dr. Terry having been called away, I remained to watch the case and administer the chloroform; but as the labor made slow progress and the convulsions increased in frequency and severity, I bled the woman copiously and sent for Dr. Terry to return and bring instruments. He soon came and the woman was delivered by means of forceps of a dead child weighing eleven and a half pounds. I remained with the case an hour, when being called out of town, I left the lady quiet and comfortable. Upon my return four or five hours later, I found her in a most violent convulsion which was reported to be the seventh since delivery. I immediately gave her fifteen drops of Veratrum

Viride and directed that she should take ten more in two hours, after which the intervals should be prolonged to three or four hours according to circumstances. There occurred no more convulsions and the woman recovered perfectly. She was not even nauseated although the medicine was given at regular intervals during the whole night.

Veratrum viride was the first drug found in the literature to be used to lower the blood pressure in man. It was used by Mangiagalli [2] of Italy in 1908, who measured the blood pressure before and after its administration. He described an extensive experience with the use of this "North American application" to control puerperal convulsions and the associated hypertension. The level of the blood pressure was used as an important guide to the dosage of the drug, although the rate and the character of the pulse were also considered helpful. Veratrum, therefore, occupies a time-honored place in the treatment of the hypertension of pregnancy.

At the Boston Lying-In Hospital, Veratrum was used in association with magnesium sulfate in the treatment of eclampsia and preeclampsia by Irving [3] 10 years

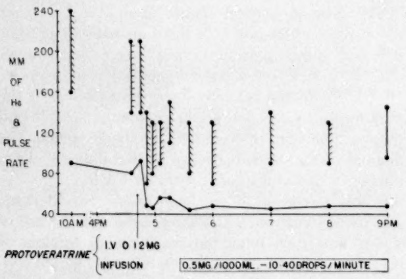

Fig. 4 (case 4).—Change in blood pressure and pulse rate after protoveratrine by intravenous injection and by infusion. The rate of infusion was governed by the level of blood pressure and the pulse rate.

ago. Magnesium sulfate may be helpful as a central nervous system depressant and, therefore, useful as an anticonvulsant when used alone [6] or with pentobarbital [7] in either toxemia of pregnancy or acute glomerulonephritis. Finnerty and Fuchs [7] have compared intravenously given Veratrum with a combination of pentobarbital and magnesium sulfate in the treatment of convulsive toxemia and found it more effective in controlling diastolic blood pressure with fewer serious complications to the mother and fetus. Protoveratrine does effectively lower the blood pressure and pulse rate in both toxemia of pregnancy and acute glomerulonephritis.

The renal function is not impaired by the use of Veratrum in the hypertension associated with pregnancy, although the urinary output may be temporarily decreased after an abrupt fall in blood pressure from Veratrum or protoveratrine. Serious oliguria or anuria have not occurred in the patients observed in this study, and, moreover, the anatomic lesions in the kidneys of patients dying of toxemia without shock or other complications are inconstant and inconspicuous.* Whatever changes occur are restricted to the glomerulus, while the tubules appear histologically normal.

Other drugs and techniques have been used in controlling hypertension associated with pregnancy, but we have had little experience with them. Reserpine is a good sedative and lowers the blood pressure in some patients. This drug has been used in association with protoveratrine in dosage of 1.0 to 1.5 mg. a day and has seemed to have an additive effect in some patients. Reserpine also has the advantage of sustained effect and is now being tried in conjunction with sodium restriction for the woman with hypertensive disease who becomes pregnant. It is too soon to know what the effect of such medication will be in decreasing the incidence of toxemia or preventing an aggravation of hypertension during pregnancy. It has the disadvantage of producing mental depression in at least 3% of the patients who receive it. While it can be given intravenously, this drug is not particularly useful for the acute hypertensive problem in regard to lowering of the blood pressure or preventing convulsions but has a beneficial sedative effect.[9]

Another drug that has a somewhat prolonged effect is hydralazine.[10] This drug has attracted much attention because of its ability to increase renal blood flow at a time when the blood pressure is reduced. However, this increase in renal blood flow is not selective and is a manifestation of increased cardiac output as well as a rise in the heart rate.[11] Since there is no evidence that the kidney is primarily responsible for the hypertension of pregnancy, there would seem to be no virtue in increasing the renal blood flow by administering hydralazine or by any other means. In fact, it would seem more desirable to use a drug that decreases pulse rate as well as blood pressure in the patient with a hypertensive crisis. Hydralazine, therefore, is not considered as desirable a drug as protoveratrine in the treatment of severe toxemia or eclampsia. The drug in dosage up to 300 mg. per day appeared to have a lowering effect upon the blood pressure in the patient with hypertension during the early phase of pregnancy in about half the patients studied by Finnerty.[12]

We have had no experience with the autonomic ganglionic depressing agents such as hexamethonium or pentolinium in the treatment of toxemia of pregnancy, and there is some evidence to suggest that such drugs have little effect upon the blood pressure in toxemia of pregnancy.[13] The experience by Morris [14] with hexamethonium would indicate that autonomic ganglionic depressing drugs have little place in the treatment of the hypertension associated with pregnancy.

While the renal blood flow is often stated to be decreased in patients with toxemia of pregnancy, the values recorded fall within the normal range for the nonpregnant individual. The renal blood flow in tox-

emic patients is, therefore, decreased when compared to the high value that is known to accompany normal pregnancy. Numerous studies have demonstrated that the glomerular filtration rate is diminished somewhat in toxemia of pregnancy, but it is doubtful whether this modest deviation in renal function influences the prognosis. Whatever the cause of death in toxemia of pregnancy may be, it is not directly the result of acute renal failure.

Regardless of the value of these hypotensive drugs, caution must be exercised in evaluating the improvement in the patient's condition. While the blood pressure may reveal satisfactory response and become controllable, and the patient immeasurably improved symptomatically, it must be realized that the disease is only in abeyance. Fetal survival, moreover, is not necessarily enhanced by this clinical improvement. Consequently, while drugs are useful in the over-all management of the hypertension of pregnancy, treatment for each patient must be carefully individualized and termination of the pregnancy performed at the propitious moment most likely to assure fetal survival and least likely to result in injury to the mother.

Conclusions

The incidence of hypertension associated with pregnancy decreased by a significant degree over a 10-year period at the Boston Lying-In Hospital. The decrease was thought to be due to more careful restriction of dietary sodium in recent years and general improvement in prenatal care. The hypertension associated with pregnancy responds well to bed rest, sodium restriction, and intravenous or oral administration of protoveratrine. Twenty-one patients have been observed in whom protoveratrine has been helpful in reducing or controlling the hypertension associated with pregnancy. Protoveratrine is considered an improvement of the time-honored use of Veratrum in the treatment of toxemia of pregnancy.

226 Marlborough St. (16) (Dr. Currens).

Drs. Gordon Gauld, Weston Sewall, William Mulligan, Thomas Goethals, and John Jewett gave permission to include their cases in this study.

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Solution for parenteral use and tablets of protoveratrine were supplied by Pitman-Moore Company under the trade name of Veralba. Protoveratrine maleate was supplied by Eli Lilly & Company under the trade name of Provell maleate.

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Genetics in the Medical Education.—Genetics is the youngest of the biological sciences, yet physicians have been observing and recording the familial aggregation of certain diseases for centuries. The family physician of the 19th century often made surprisingly accurate predictions and early diagnoses, based largely on knowledge of the family history. Observations of this sort soon found their way into medical school textbooks and lectures. As evidence of the accuracy of some of these empiric observations, it is of interest to note that the early editions of Sir William Osler's textbook of internal medicine, published 10 years before the rediscovery of Mendel's work, carried an accurate description of the transmission of a sex-linked recessive trait (Osler, 1894). In his discussion of hemophilia, Osler pointed out that all daughters of a hemophiliac male are asymptomatic carriers of the condition, and also remarked on the frequent appearance of new cases in previously healthy families, which we now refer to as mutations. It was more than two decades before the cytologic basis for these empiric clinical observations became firmly established. It is also of historic interest that the applicability of Mendel's rediscovered work to man was promptly recognized by certain workers, and that Garrod (1902) was able to show that alcaptonuria is due to an autosomal recessive gene as early as 1902. In the early days several workers attempted to apply the lessons learned from Drosophila and other laboratory animals to human problems, but knowledge accumulated slowly during the first quarter of the current century. It is well known that some of the studies of this period were poorly done and incorrectly interpreted, and did the cause of human genetics far more harm than good. The history of the development of research and the applications of genetic knowledge to medical problems was brilliantly reviewed by Snyder (1951) in his Presidential address to this Society as part of the Golden Jubilee Celebration of Genetics in 1950. The medical curriculum changes only slowly, and there was little if any organized instruction in genetics in American schools of medicine during the first three decades of this century. In the early 1930's, serious proposals that genetics should be regularly taught as a basic science and as a clinical subject were made by Madge Macklin (1932), Laurence Snyder (1933) and William Allan (1936). These three should be regarded as the pioneers and prime movers in introducing genetics as a science to the schools of medicine.—C. N. Herndon, Genetics in the Medical School Curriculum, *The American Journal of Human Genetics*, March, 1956.

INDUCED HYPOTENSION AS AN AID TO INTRACRANIAL SURGERY

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and
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• *Hypotension induced with trimethaphan has been used in connection with ether anesthesia in a series of 295 craniotomies. This series was compared with another of 201 cases in which hypotension was not induced. Blood pressures below 60 mm. Hg were associated with higher morbidity and mortality rates ascribed to cerebral damage due to stagnant anoxia. Prolongation of hypotension at levels of 70 to 100 mm. Hg did not increase morbidity or mortality. It probably facilitated operative procedure by decreasing the bleeding from small vessels and may be advisable when massive bleeding is anticipated. In the two series, however, operating times were practically equal, as were the percentages of patients requiring transfusions of 2,000 cc. or more of blood.*

Induced hypotension is the deliberate reduction of the systemic blood pressure during operations, that has as its purpose more readily controlled hemorrhage and a decrease in loss of blood. The method has been employed in a variety of surgical operations but appears to be most appropriately used in intracranial operations, in which the control of hemorrhage from both large and small vessels may be troublesome and time consuming. In an earlier report [1] we concluded, from experience with hypotension produced by trimethaphan (Arfonad) camphorsulfonate in 101 craniotomies, that the method was safe and possessed distinct advantages. The purpose of this report is to review the merits of hypotension induced with trimethaphan in a larger number of major craniotomies and to make a comparison with a similar series of intracranial operations without use of induced hypotension to determine any differences in the need for replacement of whole blood and in the time required for operations, as well as to compare the morbidity and mortality in the two groups.

Method

In two and one-half years ending in August, 1955, 295 major craniotomies were performed at the New York Hospital with use of ether anesthesia and hypotension induced with trimethaphan. The operations are grouped in eight categories as follows: operations for (1) gliomas, (2) metastatic tumors, (3) pituitary tumors, including craniopharyngiomas, (4) meningiomas, (5) schwannomas, and (6) vascular lesions, including saccular aneurysms and arteriovenous malformation; and (7) hypophysectomy for treatment of advanced cancer and (8) miscellaneous operations, including those for brain abscess, for excision of cortical scar, and for removal of epidural, subdural, and subcortical hematoma, and ventriculostomy, intracranial exploration, orbital decompression for exophthalmos, intracranial nerve section, and repair of cerebrospinal fluid fistula.

For comparison of each of these categories, with the exception of the group in which hypophysectomy was done, an approximately equal number of similar cases was collected from the operative list during the several years immediately antedating the use of induced hypotension. There are 201 cases in the control group, the discrepancy in numbers between the two series being due to the relatively few hypophysectomies (6 cases) that were performed without induced hypotension. About 75% of all the operations were performed by one surgeon (B.S.R.), and in nearly all the cases in which hypotension was employed one anesthesiologist (V.D.B.M.) was in charge.

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Read at the Ninth Clinical Meeting of the American Medical Association, Boston, Dec. 1, 1955.

Results

Table 1 summarizes the time required for operations performed with and without induced hypotension. In the two largest operative groups, operations for gliomas and miscellaneous operations, the average time appears to be a little less when hypotension was employed, but the difference is not significant, and the average time of duration for all cases in each series is exactly the same.

The figure illustrates the amount of blood replaced on the day of operation. Hypophysectomies have been excluded because of the small number of control

TABLE 1.—*Duration of Surgery in Craniotomies in Control Patients and Those in Whom Hypotension Was Induced*

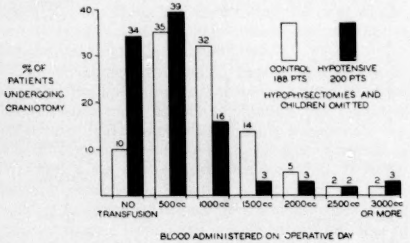
Condition or Operation	Control			Hypertension Induced		
	Operations, No.	Duration of Surgery, Hr. Av.	Range	Operations, No.	Duration of Surgery, Hr. Av.	Range
Glioma	71	3¼	1¼-6½	68	3	1¾-4¾
Miscellaneous conditions	32	2¾	1¼-4½	42	2½	1½-7
Metastatic malignancy	32	3	1½-6	30	3	1¼-4½
Pituitary tumor	21	2¾	2 -4	24	2½	1½-4
Meningioma	18	3¾	2 -6	15	3¾	2½-5
Schwannoma	11	4¾	4 -6¼	9	5	3½-7¾
Vascular lesion	10	3	2 -4½	21	3¼	1¾-6
Hypophysectomy	6	2½	2½-3½	86	2½	2 -3½
Total or av.	201	3¼	1¼-6½	295	3¼	1¼-7¾

cases, and operations on children have been omitted because any differences in the relatively small amounts of blood replaced in children would not have statistical significance. The graph shows that it was unnecessary to replace blood in only 10% of the control cases, whereas in one-third (34%) of the cases in which hypotension was induced replacement of blood was not required. There was about equal need for replacement of a moderate amount of blood (500 cc.) in each series (35 and 39% respectively). Furthermore, there was an equal percentage of patients in both series requiring 2,000 cc. or more of whole blood, demonstrating that induced hypotension is no guar-

antee against an occasional instance of major loss of blood. Table 2 contains the details of blood replacement in each group of the two series arranged for easy comparison. The figure was compiled from this table. The table shows that in all categories except the operations for meningioma there is a trend toward administration of less blood in the cases in which hypotension was induced. In the cases of meningioma the amount of blood replaced was about the same whether or not hypotension was used.

Table 3 shows the periods of stay in the hospital and the morbidity and mortality after operation. The average postoperative stay in the hospital does not seem to have been significantly influenced by employing hypotension, with the exception of cases of pituitary tumor, in which the stay was reduced by half; this is perhaps in keeping with the impression that the operations on "pituitary cases" go more smoothly than those in any other single group when hypotension is induced.

Also in table 3 is a tabulation of the important postoperative complications. The neurosurgical complications include convulsions, alteration in state of



Blood replacement in craniotomies in control patients and those in whom hypotension was induced.

consciousness, and palsies of various types that did not exist prior to operation and were not anticipated as a result of operation in a localized area of the brain. They also include instances of postoperative swelling of the brain and of intracranial hemorrhage, which are more important to consider when evaluating the effect of induced hypotension. In all there were 12 patients in whom reopening of the wound was required for evacuation of hematomas, decompression of the brain, or both, but such cases were about equally distributed between the two series. Even though hypotension was maintained through the period of closure of the wound in most cases, the survey does not indicate that the incidence of postoperative intracranial hemorrhage or edema was thereby increased. Complications other than neurosurgical include pneumonia, atelectasis of the lung, thromboembolism, thrombophlebitis, cardiac irregularity, and fever of unknown origin. Table 3 shows that the total number of complications in this category was relatively small and that there was no significant difference in incidence in the two series.

The number of postoperative deaths (table 3) is relatively smaller in most groups in the series in which hypotension was used. The many factors to be considered do not permit the conclusion that hypotension during operation can be given full credit, but at least it can be said that mortality is not increased by employing induced hypotension. The mortality in the cases of schwannoma is distressingly high and not different in the two series. A comment is in order regarding these cases, because a change in policy is required as a result of this experience. Radical extir-

TABLE 4.—*Relation of Blood Pressure During Operation to Morbidity and Mortality in Series in Which Hypotension Was Used*

Minimal Systolic Blood Pressure, Mm. Hg	Patients, No.	Deaths	Neurosurgical Complications
60 or over	226	11	11
50	26	3	1
40	16	2	4
Unobtainable	27	2	3
Total	295	18	19

pation of the tumor in all but a few of the cases was attempted regardless of age and condition of the patient; four of the patients who died were 60 years of age or older. Less radical operations now appear to be indicated in some patients in order to reduce the risk. Though it was felt that hypotension facilitated the mechanics of removing the tumor, it did not lessen the danger.

Some of the other postoperative deaths deserve mention. In the group undergoing miscellaneous operations, two of the patients receiving induced hypotension died. One patient proved to have widespread metastasis of melanoma, with occlusion of mediastinal vessels as an immediate cause of death. The other died of the effects of Taenia solium in the basilar subarachnoid space after an unsuccessful exploratory operation. One of the deaths in the group undergoing operations for meningiomas was in a patient who had induced hypotension during removal of a large bifrontal tumor. Her postoperative course was satisfactory till the sixth day, when a myocardial infarction occurred; death followed in 24 hours. The routine electrocardiogram taken the first day after operation had been normal.

TABLE 5.—*Relation of Prolongation of Hypotension to Morbidity and Mortality*

Prolongation of Hypotension Beyond Surgery	Patients, No.	Deaths	Complications
Under ¼ hr.	69	3	3
¼ to 1 hr.	20	3	1
1¼ hr. or more	7	1	...
Total	96	7	4

In the group undergoing operation for vascular lesions, including saccular aneurysms and arteriovenous malformations, there was one death in the control series and one in a patient in whom hypotension was induced. The former died of a pulmonary embolism on the 15th postoperative day; the latter died on the 3rd day as a result of inadvertent occlusion of both anterior cerebral arteries during excision of an aneurysm of the anterior communicating artery. In the group undergoing hypophysectomy, nearly all the patients had advanced metastatic carcinoma and many were poor risks for operation. On the basis of careful analysis of the cases it is believed that the

mortality attributable directly to the operation is 3 to 5%. Additional deaths after operation are due to the advanced state of the malignant disease unbenefited by hypophysectomy.[a]

Table 4 lists the lowest systolic blood pressure obtained by auscultation during the operations in which hypotension was induced and also the neurosurgical complications and the deaths that occurred in the first week after operation. There were 69 patients who had auscultatory systolic pressures of 50 mm. Hg or less, and they comprise 24% of the series in which hypotension was used. However, 39% of the postoperative deaths and 41% of the neurosurgical complications were in this group of 69 patients. Although these cases are few, they do support the reasonable impression that there is some risk to lowering the systolic blood pressure below 60 mm. Hg.

Table 5 pertains to the occurrence of prolongation of hypotension beyond the termination of the operation and cessation of administration of trimethaphan and its relation to the incidence of morbidity and mortality. In 96, or 32%, of the patients blood pressure did not return to normal immediately, though in the majority it did so within 15 minutes. One-third of the deaths and one-fifth of the neurosurgical complications in the series in which hypotension was used were in patients with prolongation of low blood pressure. Usually, however, the prolonged hypotension was in the realm of safe levels between 70 and 100 mm. Hg, and it was rarely necessary or desirable to speed the return to preoperative levels of pressure by the use of vasopressor drugs. Furthermore, there seems to be no direct correlation in most cases between any prolongation of recovery of normal blood pressure and later complications.

TABLE 2.—*Blood Replacement in Craniotomies in Control Patients and Those in Whom Hypotension Was Induced*

Condition or Operation	Patients, No.	Frequency of Patients Receiving: No Transfusion	500 Cc.	1,000 Cc.	1,500 Cc.	2,000 Cc.	2,500 Cc.	3,000 Cc. or More
Glioma								
Control	71	2	19	34	13	1	1	1(3,000)
Hypotension	63	12	32	12	1	2	2	2(3,500)
Miscellaneous conditions								
Control	30	8	17	4	1	...	...	...
Hypotension	40	25	12	2	...	...	1	...
Metastic malignancy								
Control	32	3	10	8	7	3	1	...
Hypotension	30	8	13	7	1	1	...	...
Pituitary tumor								
Control	16	2	9	4	1	...	...	...
Hypotension	22	9	12	...	...	...	1	...
Meningioma								1(3,000)
Control	18	1(100cc.)	3	6	2	3	1	1(3,500)
Hypotension	15	...	3	5	3	2	1	1(5,000)
Schwannoma								
Control	11	...	3	4	2	2	...	...
Hypotension	9	4	...	3	...	1	...	1(3,500)
Vascular lesion								
Control	10	2	5	1	...	1	1	...
Hypotension	21	9	5	4	...	...	...	1(3,500) 1(5,500)
Hypophysectomy								
Control	6	4	1	1	...	...	...	...
Hypotension	86	43	33	7	1	2	...	...

TABLE 3.—*Hospital Stay, Morbidity, and Mortality After Craniotomy in Control Patients and Those in Whom Hypotension Was Induced*

Condition or Operation	Patients, No	Hospital Stay, Days: Av.	Hospital Stay, Days: Range	Complications: Neurosurgical	Complications: Other	Deaths: 1st Wk.	Deaths: 2nd Wk.	Deaths: 3rd or 4th Wk.	Death Rate 1st Postoperative Mo., %
Glioma									
Control	71	25	10 — 65	5	...	8	2	...	14
Hypotension	68	25	6 —108	3	2	7	...	1	11
Miscellaneous conditions									
Control	32	21	8 —138	1	1	1	...	2	9
Hypotension	42	19	8 — 51	2	...	2	...	...	Neither related
Metastatic malignancy									
Control	32	22	8 — 90	2	1	3	...	4	22
Hypotension	30	17	8 — 35	1	1	...	...	2	5
Pituitary tumor									
Control	21	22	9 — 92	1	1	...	...	1	5
Hypotension	24	11	7 — 20	...	1	...	...	1	4
Meningioma									
Control	18	19	8 — 36	1	1	1	1	1	16
Hypotension	15	30	8 —119	3	1	2	...	...	13
Schwannoma									
Control	11	30	18 — 57	1	...	3	...	...	27
Hypotension	9	24	16 — 46	...	1	3	...	...	33
Vascular lesion									
Control	10	20	11 — 33	...	...	...	1	...	Not related
Hypotension	21	22	8 — 79	6	...	1	...	...	5
Hypophysectomy									
Control	6	...	...	...	...	1	...	...	16
Hypotension	86	...	...	5	...	3	3	3	10

Comment

Induced hypotension has not shortened the average operating time for intracranial operations, nor has it insured against an occasional lengthy operation, though in over 80% of the cases in which it was used hypotension was maintained from the start of the scalp incision till the end of closure of the incision. Replacement of blood in the average case is required less often and in smaller amounts than when hypotension is not employed; yet in the presence of induced hypotension there is greater necessity for undelayed replacement of excessive blood loss than pertains in other cases. Also, the use of induced hypotension does not protect against the occasional instance of excessive loss of blood and the need for large transfusions.

Induced hypotension does not materially affect venous bleeding, nor does it reduce bleeding from arteries larger than arterioles. Therefore, in approximately 60% of the operations in the series in which hypotension was used the operating table was tilted in a reverse Trendelenburg position of 15 to 25 degrees' elevation to facilitate venous drainage and to decrease the effective mean arterial pressure at the operative site. The addition of tilting the table to elevate the head could usually be relied on to accomplish the desired degree of hypotension.

The advantage of induced hypotension is not in lowering the operating time or reducing the need for blood replacement but in facilitating the operative procedure. It decreases the bleeding from small vessels during making of the scalp incision, removal of the bone plate, and closure of the wound. It is believed to cause some reduction in the size of the brain, making it easier to retract and possibly minimizing trauma. Oozing from small vessels on raw surfaces of the brain is diminished. An additional advantage is that, in the case of more serious bleeding, profound hypotension and extreme head-up position are immediately available. Use of these measures is attended by some risk of anoxia of the brain, because hypotension itself does not decrease the oxygen requirement of the brain. If it can be anticipated that serious bleeding may occur, it is probably desirable to employ hypothermia (reduction of body temperature), since this reduces the oxygen requirement of the brain. In a few operations for excision of large arteriovenous malformations, a combination of hypothermia and induced hypotension has served admirably to meet the risks entailed.

Experience with the routine use of hypotension induced with trimethaphan has demonstrated its relative safety and practicability, and tables 3 and 4 show that morbidity need not be increased with its use. There is need to avoid overdosage of the agent, although, because of its rapid excretion, there is a good margin of safety. Sustained systolic pressure below 60 mm. Hg is to be avoided and can be if attention is given to establishing the individual patient's response to the initial dosage of trimethaphan and to maintaining a horizontal position of the operating table if necessary.

Respiratory irregularity or apnea during ether anesthesia and hypotension induced by trimethaphan has been found to be a sign of intolerance to the technique. When apnea has occurred under these circumstances, ventilation of the lungs by means of intermittent positive pressure with endotracheally given oxygen, replacement of blood loss, and horizontal positioning of the patient have been adequate until spontaneous respiration has been resumed, after which it usually has been possible to resume induced hypotension safely with more limited doses of trimethaphan.

The slow return of the blood pressure to normal levels after administration of trimethaphan was discontinued occurred in a small number of cases. It has seemed better from the standpoint of allowing spontaneous physiological adjustments to occur not to resort to vasopressor drugs, and in these cases there were no complications directly attributable to the slow return of the blood pressure to normal levels.

Summary and Conclusions

Induced hypotension has been utilized in 295 major craniotomies at the New York Hospital. The surgical diagnoses were grouped in eight categories. For each of these categories an equal number of similar cases was collected from the operative list during the several years antedating the use of induced hypotension. These two series were compared. It was found that induced hypotension did not decrease operating time. Blood replacement in the series in which hypotension was used was in general 500 cc. less than in the control series, though an equal percentage of patients in both series required 2,000 cc. or more of whole blood, demonstrating that induced hypotension is no guarantee against an occasional instance of major loss of blood. Duration of postoperative hospital stay, morbidity, and mortality were essentially the same in the two series, although the experience in the series in which hypotension was used was slightly more favorable. In this series an auscultatory blood pressure below 60 mm. Hg was associated with a higher incidence of morbidity and mortality than when the blood pressure was maintained above that level. However, mere prolongation of hypotension at levels of 70 to 100 mm. Hg did not increase morbidity and mortality.

The main advantages of induced hypotension are (1) facilitation of the operative procedure by decreasing bleeding from small vessels and (2) ready availability of brief profound hypotension to assist in the control of massive bleeding. However, profound hypotension may produce cerebral damage due to stagnant anoxia. Should massive bleeding be anticipated, hypothermia may be a preferable adjunct. It is advisable to maintain a spontaneous respiratory pattern in the patient under ether anesthesia in whom hypotension has been induced with trimethaphan (Arfonad) camphorsulfonate.

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COAGULATION DEFECTS IN SEVERE INTRAPARTUM AND POSTPARTUM HEMORRHAGE

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• *The coagulability of the blood becomes defective in certain obstetric complications, especially in the severe forms of premature separation and after fetal death in utero. The first case here described involved severe premature separation of the placenta with intrauterine fetal death; the patient was delivered by abdominal hysterotomy and recovered after several transfusions and the intravenous administration of fibroinogen. In the second case there was spontaneous delivery of a macerated fetus, but the patient had persistent bleeding with symptoms of shock and likewise required whole blood and fibrinogen.*

Obstetric patients are able generally to withstand moderate losses of blood without shock; consequently, when shock does appear, it may mean that the patient is nearly exsanguinated. Detection and treatment of the syndrome of hypofibrinogenemia may be of crucial importance in such patients. If fetal death occurs, the mother should have a weekly clot-observation test. The clotting mechanism should be corrected before any obstetric procedure is completed, and this is readily accomplished by transfusion and fibrinogen.

In the past 25 years a creditable reduction of maternal mortality has been achieved, but, despite this improvement, deaths from obstetric hemorrhage have not decreased proportionately. Moreover, blood loss is a major factor in maternal deaths that are assigned to causes other than hemorrhage. In addition, renal and pituitary damage are sometimes serious sequelae in the pregnant patient who has suffered hemorrhagic shock. Being relatively young, healthy individuals, obstetric patients may adjust to moderate amounts of blood loss without exhibiting evidence of shock. The ability of the obstetric patient to withstand moderate blood loss without shock makes this form of hemorrhage the more dangerous, for when shock appears the patient may be nearly exsanguinated. Under certain circumstances blood transfusion alone fails to stabilize the patient's condition. In these cases the hemorrhagic manifestations may be correlated with an upset in the blood clotting mechanism. This phenomenon has been observed in long-standing death of the fetus in utero, the severe form of abruptio placentae, and as a secondary effect of amniotic fluid embolism.

On the basis of present evidence, the clotting defect appears to be mainly due to a reduction in the plasma fibrinogen concentration. While other factors of blood clotting may be decreased, especially platelets, Ac-globulin, and prothrombin activity, the reduction does not reach a hemorrhagic level. In the rare case, no fibrinogen may be detected in the maternal blood, but in the majority of instances the value is somewhat less than 100 mg. per 100 ml. A fibrinogen concentration below 150 mg. per 100 ml. in the pregnant patient is now generally regarded as abnormal. We initially referred to this condition as an afibrinogenemia. Others have suggested the term hypofibrinogenemia, and undoubtedly this is a more appropriate and descriptive term.

Etiology

Clinicians for many years have remarked that the shed blood on occasion fails to clot in intrapartum and postpartum hemorrhage. Dieckmann, in 1937, recorded his observation of a low fibrinogen concentration in some cases of abruptio placentae. A decade later, Moloney and associates administered fibrinogen to a patient with an acquired afibrinogenemia associated with premature separation of the placenta.[1] A circulating fibrinolysin was demonstrated in the patient's blood during the hemorrhagic episode. In 1950, these observations were verified and it was demonstrated that hypofibrinogenemia developed in only the more severe form of abruptio placentae.[2] In addition, two other obstetric complications, longstanding fetal death in utero and amniotic fluid embolism, which may occasionally result in hypofibrinogenemia, were recognized and described.[3]

Several theories regarding the etiology have been advanced. It has been postulated that thromboplastin-like substance arising from within the uterus gains access to the maternal circulation and produces intravascular clotting with consumption of fibrinogen.[4] On the basis of animal experimentation, placental trauma was shown to produce fibrin emboli, and thromboplastin of placental origin was considered to be the chief activator of this process.[5] We have been impressed by the presence of fibrinolysin in the blood of patients with hypofibrinogenemia, but others have had little success in demonstrating this fibrinolytic activity.[6] If we assume that lytic activity is consistently associated with hypofibrinogenemia in these cases, we may inquire into its significance. From our observations, it does not appear to be identical with the postmortem fibrinolysin reported by Mole,[7] for the latter substance dissolves fibrin only. Evidence gained in our laboratory indicates the lytic factor in patients with hypofibrinogenemia is active against both fibrinogen and fibrin. Whether this substance is liberated directly from the uterus, or its precursor, plasminogen, is activated by a factor released from the uterus, or whether it is an effect of intravascular coagulation re-

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mains an open question. It has been shown that plasminogen activated by streptokinase will markedly depress the fibrinogen concentration in vivo.[8] On occasion a patient is seen who continues to ooze vaginally for two to four hours after delivery, despite the fact that the plasma fibrinogen concentration has been restored to normal or to extremely high levels. During this period of concern, blood samples assayed in our laboratory have shown a high degree of fibrinolytic activity, offering further evidence that the latter may be important in the causation of the coagulation defect. Whatever may be the etiology of hypofibrinogenemia, the role played by fibrinolytic activity with respect to the integrity of clot formation at the placental site cannot be dismissed.

Diagnosis

The severe form of premature separation of the placenta accounts for the majority of instances in which a coagulation defect is observed. The condition has never been seen in the milder forms of abruptio and is restricted to patients who present a rather characteristic picture. This may be exemplified by a patient in the latter weeks of pregnancy who is seized with moderate to severe abdominal pain, usually accompanied by vaginal bleeding, and who enters the hospital in some degree of shock. Physical examination reveals a spastic, tender uterus indicative of extensive concealed hemorrhage. Fetal heart sounds are frequently absent or weak and irregular. If the uterus could be observed, it would present a mottled appearance due to formation of hematomas beneath the serosa (Couvelaire uterus). There is often little or no urine in the bladder, and what is present may contain protein and formed elements. The degree of shock seems out of proportion to the estimated amount of external bleeding. Hypofibrinogenemia has been detected in one-third to one-half of the patients with this clinical picture. While the mortality from premature separation of the placenta resides in this severe group, fortunately 90% of patients with abruptio placentae have the mild form.[9]

A coagulation defect associated with fetal death in utero is oftentimes heralded by the appearance of ecchymoses and bleeding from the mucous membranes. For some unexplained reason, the condition is rarely encountered prior to the 20th week of pregnancy. It has been seen only in cases where the dead fetus has remained in utero for more than five weeks. Hypofibrinogenemia may develop before the onset of labor, or its appearance may be delayed until the intrapartum period. Approximately 75 to 80% of patients with a dead fetus will not develop a clotting deficiency during parturition. Most instances are associated with Rh incompatibility, primarily because this is a common cause of fetal death in utero in the interval between the fifth to the eighth month, when the spontaneous onset of labor is least likely.

Amniotic fluid embolism, described by Steiner and Lushbaugh, or amniotic fluid infusion,[10] fortunately a rare complication, is being reported with greater frequency. It can now be accepted that the sudden appearance of shock and severe respiratory distress during an otherwise normal labor is pathognomonic of this syndrome. The factor that seems to be of etiological importance in the development of the condition is a rapid and tumultuous labor, which may be precipitated by the overenthusiastic use of pituitary preparations. Hemorrhage manifestations may develop, providing the patient survives the initial embolic insult. In addition to uterine hemorrhage, which is attributed to atony, there may be generalized bleeding from mucous membranes, indicative of a clotting defect.

The clot observation test has proved to be a rapid and practical means for the recognition of the hypofibrinogenemic state.[9] This simple test involves the withdrawal of 5 ml. of the patient's blood into a clean, dry test tube and observing it at frequent intervals for clot formation and stability. Normal blood will clot within 8 to 12 minutes, and the clot will remain intact for at least 24 hours. In these cases the blood may not clot, or if it does so may undergo partial or complete dissolution within 30 to 60 minutes. In the event of the latter finding, hypofibrinogenemia and the likely presence of fibrinolytic activity are indicated. This test may be conducted entirely at the bedside; the blood taken for cross matching may serve for the test. A more detailed laboratory analysis of the fibrinogen concentration of the patient's plasma is instituted to confirm the diagnosis, utilizing the estimation of tyrosine activity.[11] Schneider[12] and Bonsnes and Sweeney[13] have recently published details of shorter methods yielding semiquantitative approximations of fibrinogen concentration.

Treatment

The treatment of severe premature separation by choice involves rupture of the membranes and delivery per vaginam. Although one is tempted to perform an immediate cesarean section at the time of diagnosis, especially if the fetal heart sounds are detected, the initial problem in management is to ascertain and correct the clotting defect and combat shock. Blood in amounts sufficient to restore the blood volume should be rapidly administered, while the intravenous infusion of fibrinogen (fraction 1) can be relied upon to raise the fibrinogen concentration to normal levels. In the average case the predelivery requirements are 1,500 to 2,000 ml. of blood and 4 to 8 gm. of fibrinogen.

According to this method of management, cesarean section is restricted to cases in which effective labor does not ensue within six to eight hours after amniotomy and before intrauterine infection becomes an added hazard. The clotting mechanism has now been restored and operative intervention can be instituted without danger of uncontrolled hemorrhage (case 1). This policy has been questioned on the grounds that any delay in delivering the patient will allow the clotting mechanism to deteriorate further. Those who re-

gard immediate cesarean section as the treatment of choice submit as their rationale the fact that hysterectomy can easily be performed if uncontrollable hemorrhage persists after the uterus has been emptied. This method of management does not take cognizance of the fact that upon hospital admission the patient's blood is, or is on the verge of becoming, incoagulable. Furthermore, bleeding in these severe cases, which in many instances is attributed to uterine atony, is in all probability the result of a defect in the clotting mechanism. Experience, moreover, has shown that the coagulability of the undelivered patient's blood can be restored to normal by the administration of blood and fibrinogen.[8]

The most significant problem in the management of patients with fetal death in utero is whether the pregnancy should be terminated before the possible appearance of a hemorrhagic diathesis. Despite the fact that a prepartum defect may develop, the preferable policy is one of watchful expectancy, for several reasons. The majority of patients with intrauterine fetal death will enter spontaneous labor and will deliver within a few days or weeks after the disappearance of fetal heart sounds. At this early stage of pregnancy induction of labor is an uncertain procedure at best and may lead to complications. Finally, experience has shown that a hemorrhagic diathesis can be controlled by the prepartum and intrapartum administration of fibrinogen (case 2).

After fetal death and until the patient is delivered, she should have a weekly clot-observation test and ideally a determination of the plasma fibrinogen concentration. She should be cautioned to report immediately any bleeding from the reproductive or gastrointestinal tract or into the subcutaneous tissues. Similar to the experience of Pritchard and Ratnoff,[6b] we have not seen any spontaneous correction of the fibrinogen concentration before delivery. Unquestionably, fibrinogen values may decrease prior to the onset of labor, but during the latter period the process may become accentuated. Cesarean section has a place in the treatment of the rare patient in this group in whom there is a recurrence of excessive bleeding after blood and fibrinogen therapy and whose cervix is unfavorable for the induction of labor.

The treatment of amniotic fluid embolism is initially confined to the administration of oxygen and the use of conventional measures to combat shock. Because of the rapidity of the labor, the cervix is frequently found to be fully dilated, and, if feasible, delivery should be performed in an effort to salvage the infant. If the above supportive measures are sufficient to prolong the mother's life, a delayed complication in the form of uncontrolled postpartum hemorrhage should be anticipated. The reproductive tract should be gently explored at the time of delivery for any areas of traumatic injury and such injury thus excluded as a cause of postpartum hemorrhage should it develop. If bleeding does ensue and a defect in the clotting mechanism is demonstrated, the patient with amniotic fluid embolism may survive if treated energetically with transfusions and fibrinogen replacement.

Several reports have appeared indicating that, in contradistinction to the syndrome of hypofibrinogenemia, an acquired hemorrhagic diathesis resembling hemophilia may develop and be recognized late in pregnancy or a few weeks to several months after delivery.[14] The clotting time of normal blood is definitely prolonged upon the addition of the patient's blood, suggesting that the coagulation defect is the result of a circulating anticoagulant. The latter is believed to interfere with antihemophilic globulin or the precursor of thromboplastin and consequently has been referred to as an antithromboplastin. Its appearance suggests an immunologic reaction, for on one occasion the anticoagulant has been demonstrated in the blood of the infant of such a patient.[14b] In the present state of knowledge, the prognosis must be guarded, for the only known treatment consists of multiple transfusions.

Report of Cases

Case 1.—A 31-year-old woman, gravida 2, para 1, whose expected date of confinement was Sept. 29, 1955, was admitted to the hospital Aug. 20, 1955, as an unregistered emergency patient. She was seen by her physician early in the afternoon on the day of admission because she had complained of lower abdominal pain, associated with dizziness and some vaginal bleeding. According to her physician, the fetal heart tones were absent at the time. The patient was admitted to a community hospital and some three hours later was transferred to the Boston Lying-in Hospital. On admission, the blood pressure was found to be 130/70 mm. Hg, with a pulse of 154 per minute, and the rate continued to rise with a fall in blood pressure. The patient complained of a considerable amount of abdominal pain, and on examination the uterus was found distended to full term, board-like, tense, and tender. No fetal heart tones could be heard. The diagnosis made was of severe premature separation of the placenta with intrauterine fetal death. The patient's blood was cross matched, and blood was taken for fibrinogen determination; the level was subsequently reported to be 62 mg. per 100 ml. A second sample of blood taken prior to parenteral therapy contained 68 mg. per 100 ml. The clot-observation test made on admission showed complete lysis of the clot within one hour. Soon after admission the patient was removed to the operating room and an amniotomy performed. The cervix was found to be 2.5 cm. dilated and 1 cm. in length, with the vertex presenting at the level of the ischial spines. The amniotic fluid was clear. Soon after this procedure blood transfusions and fibrinogen administration were started. During the next four hours the patient received 3,000 ml. of blood and 8 gm. of fibrinogen. The patient continued to lose a moderate amount of blood per vaginam, and an attempt was made to initiate labor by the administration of oxytocin (Pitocin) given by intravenous drip. Effective uterine contractions, however, did not ensue. Because of the absence of effective labor, it was decided some four hours after amniotomy that the patient should be delivered by abdominal hysterotomy. At this time the fibrinogen concentration was 386 mg. per 100 ml. and freshly drawn blood resulted in a firm, stable clot. When the peritoneal cavity was entered, the uterus was found to be large, extending to the xiphoid process. The uterus was entered through a vertical lower segment incision. The placenta was found to be floating free in a vast amount of blood, estimated at 2,000 ml., and the placenta, along with the fetus, was removed. The uterus was a typical Couvelaire type, with large hemorrhagic areas visible over its surface. During the operation the patient received an additional 1,000 ml. of blood. A clot-observation test appeared to be normal in the early hours of the puerperium, but the patient continued to ooze somewhat per vaginam, and consequently she received an additional 1 gm. of fibrinogen. The fibrinogen level 12 hours later was 438 mg. per 100 ml.

Throughout the remainder of the hospital stay the patient did extremely well and had an afebrile convalescence. During the critical period of her illness the patient received 4,000 ml. of blood and 9 gm. of fibrinogen, but despite the therapy, on discharge from the hospital, her hemoglobin level was only 11 gm. per 100 ml. It might rightly be questioned that a considerable delay occurred from the onset of symptoms and admission to the hospital until definitive treatment was instituted. According to our experience, however, if a clotting defect is destined to develop in this type of case, it will appear soon after the beginning of symptoms.

CASE 2.—The patient was a 28-year-old woman, gravida 2, para 3, whose expected date of confinement was Sept. 25, 1954. She had had two normal full-term pregnancies in 1950 and 1951. In 1953 a pregnancy ended in the delivery of a stillborn infant with erythroblastosis fetalis. Her present pregnancy was complicated by a rising titer of Rh agglutinins and fetal death in utero. She was first examined in the outpatient department on April 11, 1954, in the 20th week of her pregnancy. She was seen at regular intervals, and the fetal heart was heard for the last time on June 28, 1954, when the patient reported a marked decrease in fetal activity. On July 20, a sample of her blood clotted well but showed fibrinolysin 1+. The fibrinogen concentration was 500 mg. per 100 ml. The patient reported an episode of diarrhea and rectal bleeding on Aug. 3, 1954, and she was admitted immediately to the Boston Lying-in Hospital. The plasma fibrinogen concentration on admission was 91 mg. per 100 ml. and fibrinolysin content was 4+, hemoglobin level 12.8 gm. (82%), and hematocrit 40%. It was decided not to administer fibrinogen unless the bleeding caused a significant drop in hemoglobin and hematocrit values. On Aug. 4 the patient entered spontaneous labor and was delivered of a stillborn, macerated female fetus weighing 14 oz. (400 gm.). Three hours prior to delivery the fibrinogen concentration was 80 mg. per 100 ml. and fibrinolysin 3+. For two hours after delivery there was a steady loss of blood from the vagina, although the uterus was small, firm, and well-contracted. The pulse rose to 120 and blood pressure fell to 60/30 mm. Hg. The patient was given 2,500 ml. of blood and 5.6 gm. of fibrinogen over the next four and one-half hours, and coincidentally the blood pressure began to rise and the pulse fell gradually. The next day the plasma fibrinogen concentration was 278 mg. per 100 ml. and fibrinolysin was 2+. She continued to improve, and on Aug. 10 the plasma fibrinogen concentration was 374 mg. per 100 ml. and fibrinolysin was 1+, and the patient was discharged on the eigth postpartum day. Despite the fact that the uterus was well contracted and the fibrinogen levels were restored to normal, after delivery this patient continued to ooze in excess. During this period considerable fibrinolytic activity was demonstrable in the patient's blood.

Conclusions

During recent years it has been determined that a defect in the coagulation mechanism may infrequently develop in late pregnancy and the intrapartum and immediate postpartum period. Because of its low incidence in comparison to the number of deliveries, the syndrome of hypofibrinogenemia is sometimes disregarded until the patient is in the terminal stage of hemorrhagic shock. The syndrome, if undetected and untreated, may constitute the difference between whether the patient survives or dies from uncontrolled uterine hemorrhage.

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The Theory of Stress.—A contribution to medical knowledge which may prove to be of a similar heuristic value is the theory of stress introduced by Selye. It represents, as Selye (1954) himself suggests, the negative counterpart, or mirror image, of Pasteur's theory. It holds that many diseases have no single cause, no specific pathogen, but are largely due to non-specific stress, and to pathogenic situations which result from inappropriate responses to such non-specific stress, in the form of a general adaptation syndrome. The apparent cause of illness is often an infection, an intoxication, nervous exhaustion or merely old age. But actually a breakdown of hormonal-adaptation mechanisms appears to be the most common ultimate cause of death. When the organism is subjected to stress—in the form of injury, infection, emotional trauma, excessive cold or exhaustion—an "alarm" reaction takes place. The pituitary and the adrenals produce an excess of the hormones which combat stress and preserve the welfare of the body. For a time this adaptive measure is successful—the organism learns to live with its stress, as it were. However, if the stress continues, the mechanisms break down, and the body succumbs to the wreckage produced by these excess hormones, originally intended as an emergency defence against a state of stress. Selye formulated his theory as a result of experiments with animals, but soon he noted that remarkable parallels could be drawn between the post-mortem findings in rats subjected to excessive injections of somatotropic hormone (S.T.H.) and desoxycorticosterone (D.C.A.), and findings in human subjects who had died of cardio-vascular, renal and other common fatal disorders. Many clinicians throughout the world have noted an alarming increase in the early onset and incidence of disorders such as coronary and cerebral thrombosis, rheumatoid arthritis, hypertension, diabetes, peptic ulceration and other conditions usually associated with chronic worry, overwork, fatigue and the rush of modern industrial cities. Selye also noted that it was not always necessary for an actual excess of corticoids to be produced, for virtually the same results were obtained by enhancing the effects of comparatively small quantities of corticoids through stressors. Chronic malnutrition, emotional tension and most comparatively mild stressors act predominently through this mechanism on man.—D. R. MacCalman, M.D., F.R.C.P., Stress in Childhood, *The Medical Journal of Australia*, March 3, 1956.

HABILITATION OF THE CHILD WITH SPINA BIFIDA AND MYELOMENINGOCELE

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• *Experience with 45 children with spina bifida and myelomeningocele shows that an active and hopeful approach starting at birth can usually prevent years of nursing care in bed. Remarkable degrees of self-sufficiency have been achieved in such activities of daily living as dressing, hygiene, eating, and ambulation, despite paraplegia, surface anesthesia in the lower extremities, incontinence, and in some cases intellectual retardation. Progressive renal damage can be prevented by conscientious management.*

Early removal of the myelomeningocele is advised in order to prevent meningitis and the possibility of further disability or death. Immediate steps toward habilitation not only prevent physical complications but improve the emotional attitudes of the patient and his family. The results have justified the efforts.

In discussing the child with spina bifida and myelodysplasia, Jaeger wrote in 1953: ". . . generally speaking, it is a physician's Hippocratic duty to preserve life and prevent suffering, but how can one be sure that he has selected the right course of action when the immediate saving of life may mean life-long suffering?" [1] Jaeger also stated that he knew of no such child with total paralysis of the bladder who survived the first 10 years, nor of any with complete transverse myelitis who reached adolescence. We have encountered 45 children with myelomeningoceles and many others with similar disabilities resulting from birth injuries and other acquired disorders of the spinal cord, and our experience has been at wide variance with Jaeger's.

Our interest in this problem was aroused by the successful restoration to productive lives of hundreds of paraplegics in the armed forces and in civilian life since World War II. The habilitation of a child who is paraplegic as the result of a myelomeningocele is similar. He has a prominent advantage in that the cauda equina is usually damaged as well as the spinal cord, resulting in flaccid rather than spastic paraplegia. Accordingly the child is spared both the severe uncontrollable spasms and the additional weight of the spastic musculature. On the other hand, he has been denied the experience of early normal learning and development. He is apt to have the additional handicap of hydrocephalus or other organic brain damage, with resultant intellectual deficits and aberrations in behavior. There is danger, with continued growth, of a changing picture as a result of traction on the cauda equina and spinal cord. There are differences also in the nature of the bladder disturbance and in the psychosocial aspects. The program is modified as indicated by the above differences, and the prognosis should be equally good.

The 45 children reported on here are a heterogeneous group, representing all childhood cases seen for habilitation at the Institute of Physical Medicine and Rehabilitation and at Bellevue Hospital. All had demonstrable motor deficits, almost all had sensory losses, and all save one had colon and bladder incontinence. Our philosophy, objectives, and methods have been previously published.[2] The most important features of these cases were tabulated in order to show the special problems of each patient at the time he was first seen, the generalities of treatment, and the functional results. The tabulation will be summarized below. Unfortunately, however, the table cannot portray the step-by-step process of habilitation, the repeated discharges and readmissions, or the rationales.

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Because of space limitations the table has been omitted from THE JOURNAL and will be supplied with the authors' reprints.

Summary of Important Features

Three patients were first seen as early as 11 months of age and one as late as the 17th year. The average age was 6 years, the median 5½ years. The level of the lesion was not tabulated, because there was no correlation of the level of the spina bifida or of the myelomeningocele with the sensory or motor levels, or of the latter with each other. Two patients had cervical lesions. The majority, as expected, were in the lumbosacral area. There were 21 boys and 24 girls. In 28 patients the mass had been removed during the first 6 months of life, 5 during the second 6 months, 8 more before the age of 5 years, and one at 7 years of age. Of three sacs that were still present when the patients were first seen by us, two were small and intact and were covered by tough skin but the third was friable and leaked periodically. It was protected by a cage-like modification of our spinal brace until the child and her parents were prepared for its removal. Six patients were seen for less than one month. Except for one patient followed for seven and one-half years and another for four and one-half years, none have been with us for more than four years. The average has been 21 months, the median 15 months. Most of the patients are still under observation on an outpatient basis, with periodic readmissions as necessary for urologic surveys and for the patients to learn new activities for which increasing growth and development have prepared them.

Neurological and Psychiatric Features.—The range of head circumference in 31 cases was 18 to 27 in. (45.7 to 68.6 cm.), with a median of 21½ in. (54.6 cm.). Circumference was not recorded in 14 cases, but it was described as normal in 5 and as enlarged in 5. None of the children had significant further head growth after they came under observation. Caudal displacement of brain stem, cerebellum and spinal cord (Arnold-Chiari syndrome) has been suspected at times, but surgical intervention was necessitated by progressive symp-

toms in only one child while under our care. In that case the cerebellar tonsils and the medulla were found to be displaced as low as the second cervical level, and there was relief of symptoms after decompression. On the basis of neurological or psychometric testing, several children were thought to have had brain damage. I. Q. determinations fell below 60 in 5 cases, between 60 and 69 in 2 cases, 70 to 79 in 4 cases, 80 to 119 in 18 cases, and over 119 in 2 cases. The average was 85. Three children had verbal I. Q.'s in the average range, with much lower nonverbal ratings. Ten children were described in terms that would place them in the average range, but exact quotients were not determined. No record was made in one case.

Psychiatric reports described 22 children at the time of admission in unfavorable terms alone, such as "anxious," "poorly motivated," "hostile," "disturbed," or "distractible." Thirteen were described only in favorable terms, such as "friendly," "cooperative," or "well motivated." Four were described in mixed terms, and no comment was made concerning six. Initial social service reports described seven families in favorable terms only, such as "loving," "objective," "cooperative," or "affectionate." Twenty-two were described in purely unfavorable ways, such as "overprotective," "overindulgent," "uncooperative," "rejecting," "needing improvement," "lacking acceptance of the disability," "neurotic," "alcoholic," "separated," or as having abandoned the child (one or both parents). Four families combined good and poor qualities, while reports were not made on 12.

General Condition.—Most of the patients had had prior treatment in addition to removal of the myelomeningocele, but none had had comprehensive habilitation. The prevailing attitude was one of hopelessness. Orthopedic operations were performed to correct deformities, but without provisions to prevent recurrences. Braces were prescribed in some cases, but were generally inadequate and were seldom used. Urologic investigation was seldom carried out. Above all, training in performance of the activities of daily living was wanting. As a result, few of the children, particularly those with complete lesions, could dress, feed, or wash themselves, and those few with wheel chairs had obsolete equipment and were unable to propel them.

Five patients had no peripheral somatic sensory loss. Thirteen had a partial loss. Of these, one patient with a cervical lesion had loss of position sense and stereognosis in all extremities but retained awareness of pain and touch. One child had loss of touch sensation only in his feet. Another had primarily loss of proprioception below the knees and was ataxic. No record was made of sensory involvement in two cases. The remaining 23 patients had demonstrable levels of loss of sensation, 7 at the 10th thoracic level or above and 18 below this level. In only five patients was there a sensation of bladder fulness. Decubitus ulcers were a serious problem in six patients, moderate in five, and minor in eight. Sixteen patients never had decubitus ulcers, and 10 charts bore no relevant comment, probably indicating that these children had at most experienced minor skin breakdowns. All of those known to have had decubitus ulcers had sensory loss in the area of ulceration, with the one exception of a child with minor skin lesions. The average I. Q. in the "serious" group was 77, as compared to 92 in the "minor" group. Those in the "serious" group had been uniformly graded as poor emotionally, and their family attitudes were likewise rated as poor. We have always been able to clear the skin of inpatients with simple medical measures.

All children in the series had some neuromuscular involvement. One patient with a cervical lesion had only incoordination in four extremities. The other with a cervical lesion had quadriparesis, with greater involvement on the right side. The latter was also ataxic, although no sensory loss was noted, perhaps related to associated cerebral anomalies, internal hydrocephalus, or the Arnold-Chiari malformation. Eighteen patients had a partial motor loss in their lower extremities, varying from isolated weakness or paralysis in particular muscles to generalized weakness with grades predominantly below functional levels. The remaining 25 children had complete paraplegia; 5 of these also had significant weakness of their trunks. Two of the 25 had spastic paraplegia, while the remainder had flaccid paralysis. Three children had severe motor disturbances of one upper extremity, not directly related to the myelomeningocele. Most of the children had disuse weakness of their upper extremities and trunks.

At the time they were admitted to our services, 31 of the children had deformities of one or both feet; 22 had hip flexion contractures, of whom 5 had lumbar lordosis as a result; 18 had knee flexion contractures; 7 had scoliosis; 6 had tibial torsion; 4 had knock-knees; 4 had a tight quadriceps femoris; one had kyphosis; and one had a severe deformity of the chest and spine. Many of these deformities had previously been treated with casts or open surgery, but many had recurred because of poor preparation and poor follow-up.

In most cases conservative methods were adequate to correct deformities, by manual stretching, bracing, or wedging in plaster casts. However, unless the deformity hampered satisfactory function, we were content to prevent further progression. We recommended surgery only to facilitate functional performance and only when we were confident that the gains could be retained. Thirteen open operations were performed, on our recommendation, on nine patients. There were four tenotomies for release of contractures, four foot-stabilization procedures, three rotation osteotomies for severe tibial torsion, and two open reductions of dislocated hips, one of which was complicated by postoperative osteomyelitis with destruction of the head and neck of the femur. Dislocated hips were found in 22 children: eight bilaterally, eight on the right side only, and six on the left alone. Three children were noted to have none, while 20 charts bore no pertinent comment. Dislocation of the hip is more prominent among this group than among those with acquired paraplegia in our group, and it was noted occasionally where hip musculature was apparently normal. Although x-rays were not routinely taken, other anomalies of the spine and pelvis in addition to the spina bifida were noted in some cases.

Urologic Features.—Colon function has been easily controlled in almost all cases by methods previously described.[3] All but one of the patients reported bladder incontinence as a presenting complaint and its

control as a leading goal. Only five had any sensation of bladder fulness, and these children had extreme urgency of urination. The bladder aura or "call" often seen in adult paraplegics when their bladders are full, manifested by such signs as sweating, facial flushing, headache, and "goose pimples," has not been noted in our pediatric patients.

Urinary infections and unexplained fevers that may represent walled-off infections of the upper urinary tract were frequent and severe in only one patient. Seven had moderate to frequent urinary sepsis. (Of the latter eight children, six had underlying renal pathology.) Twelve had rare or occasional mild infections. Ten never had recognized infections or unexplained fevers. The records of 15 patients have no statement about urinary infection, but since all personnel are alert to this problem above all others, they had probably had no infections. The detailed urologic findings in 34 of the patients in this series have been reported by Morales, Deaver, and Hotchkiss.[4] All had evidence of cystitis that was neither disabling nor even disturbing. Urologic surveys disclosed no pathology of the upper urinary tract in 19 children in any of their serial studies. One had ureteral reflux as the only abnormality. (Transient ureteral reflux was observed in a few cases.) Thirteen had hydroureter and hydronephrosis, which were usually unilateral and usually accompanied by ureteral reflux. Three had only mild hydronephrosis. A bladder calculus was found in only one case. Two patients refused to permit the studies, and six others have not yet had them for other reasons.

None of our patients have died, nor have any been handicapped in their activities because of urinary problems other than incontinence. Fifteen have passed their 10th birthdays. Eight of these have no demonstrable dysfunction of their upper urinary tracts. Of the remainder, two have not permitted the urologic studies. The percentage with renal pathology is no higher than for the entire group of 45. In a search of the records of the adult division of the Institute of Physical Medicine and Rehabilitation, only one case of myelomeningocele was found. This was in a boy of 20 with complete transverse myelopathy but with normal urinary morphology and kidney function despite a neurogenic bladder. Those of our series who have advanced or irreversible renal pathology had suffered it before they first visited us.

In eight cases suprapubic cystotomy was required for diversion of the urinary stream because the urethra was too small for a retention catheter. Three of these patients also had plastic repairs of dilated, tortuous ureters. Two of the three had nephrostomies as well, in order to provide temporarily improved drainage of a hydronephrotic kidney. Although the postoperative course was often stormy, operation in each case was followed by improvement in the radiographic appearance of the kidney. A bladder stone was removed cystoscopically from one patient. Transurethral resection of the bladder neck was performed in one case because of progressive hydronephrosis and increasing bladder residual. The kidney was restored to normal, and a good two-hour voiding schedule was established. The same operation was performed on one of our patients elsewhere, with excellent results. Two rectus fascia sling operations were performed to provide substitute sphincters, but both were fruitless.

We were overly optimistic at an earlier date [2b] in expecting these children to develop automatic bladder control. We do not attempt training in the presence of ureteral reflux or hydronephrosis. In the presence of a spastic bladder with a small capacity, it is pointless. However, we did investigate the use of propantheline (Pro-Banthine) as an aid to increasing the capacity of the bladder, and, in one case of small bladder and weak sphincters in a child who was previously always wet despite a sensation of fulness, a good two-to-three-hour schedule has been achieved. However, we encountered marked increases in bladder residual after the administration of propantheline in other cases, so we have discontinued its routine use.

One of the patients with a cervical lesion has a normal bladder. The other patients have been able to initiate the stream by various maneuvers, but it continues only as long as the pressure is maintained. Ten are thought to have had good results from bladder training and four moderately good, and four have slight degrees of bladder control. Fourteen use a urethral or suprapubic catheter, two a urinal, and nine absorbent pads. One is not accounted for in this regard. Of the 10 with good results, 7 have incomplete motor and sensory lesions, though no sensation of bladder fulness. An eighth has paraplegia, but only partial sensory loss. A ninth retains bladder sensation. Only one therefore had complete transection, and that at the ninth thoracic level. The age and intelligence of the children as well as their social environments can be determined in relation to their degrees of bladder control by reference to the table. The nature of the neurogenic bladder and upper-urinary complications must likewise be considered in evaluating the results of bladder training.

Other Features.—Our children had their share of the usual ailments, such as dental caries, tonsillitis, and communicable diseases. Refractive errors and strabismus were common. Obesity was frequent, but was extreme in only one case, that of our oldest patient, who invariably lost considerable weight while in the hospital but regained with interest at home. There was one case of prolapsed rectum, which was successfully repaired surgically. Because of space limitations, information on further habilitation was not reproduced in the table. However, the capacity of few of the patients was adequate for their age when first seen, according to the prognostications of Long and Lawton,[5] but few were behind predicted capacity in self-care activities at last reports. Those few who are still deficient in bed and wheel-chair activities, washing, dressing, and eating are obviously limited by age, intelligence, other physical handicaps, or psychosocial obstacles.

Eighteen patients of the 45 are independent in ambulation and can negotiate steps and curbs, with the exception in some cases of the high bus steps. Eleven are independent in ambulation but have not yet mastered elevation. Twelve have attained various stages of standing balance and walking between parallel bars, while one is too young to commence this training.

Three are in the sitting balance stage. Again, these accomplishments must be qualified by such factors as age, degree of motor involvement, and duration of habilitation, which are shown in the table. Three patients have bilateral long leg braces, 14 a pelvic band in addition, and 15 a spinal brace as well. Six have lower degrees of bracing, five have none, and one refused to accept braces as recommended. One youngster has a Knight spinal brace alone, which she will use to support her in sitting until she is ready for further habilitation. Ischial rings are often incorporated into the brace for a dislocated hip, and a lift is added to the corresponding shoe to compensate for shortening. Other variations and night braces will not be elaborated on. Appropriate crutches and wheel chairs are in use. Twenty-one children of the 35 in the Institute of Physical Medicine and Rehabilitation group are of school age. Twelve are known to be attending school. Three of the total series have been referred for institutional care.

Comment

We should have liked to correlate functional performance with such factors as age, sex, extent of the neurological damage, psychosocial factors, and age at the start of habilitation, but this could not be adequately done with a small series. Considering that lifelong supervision by a team of specialists is projected, the intervals of observation have been too short for long-range forecasts, although experience with adult paraplegics has been favorable and can be applied to these cases. A large head imposes a burden on balance and posture and may necessitate more bracing than would otherwise be necessary, but hydrocephalus does not necessarily indicate poor intelligence or a poor prognosis, nor is low intelligence a bar to successful results. Other manifestations of brain damage, such as distractibility and poor attention span, are greater obstacles, but not as retarding as the emotional effects of a bad home environment. It is striking that the child with the lowest I. Q., 38, can nevertheless, at the age of 9 years, manage her wheel chair; feed herself; take care of ordinary hygiene, such as washing her hands and face, combing her hair, and brushing her teeth; and partially dress herself, despite the additional handicaps of paraplegia, a spastic arm, orthopedic deformities, and a negative, destructive, disturbed personality. One of our most self-sufficient youngsters, an 11-year-old patient with spastic paraplegia, has an I. Q. of only 57.

Even a child who will obviously require ultimate institutionalization will benefit from any degree of independence in self-care that he can be helped to achieve. In regard to bladder training, we feel that scheduling, when at all successful, keeps the bladder residual at a minimum, reducing retrograde pressure and stasis. It affords the child increased independence and self-confidence by reducing the amount voided involuntarily to a more readily controlled minimum. Inasmuch as renal complications represent the greatest threat to these patients, extensive urologic surveys are carried out at intervals of six months to a year.

We have measured results in terms of physical health and functional performance, but we like to think as well of certain indefinable spiritual and social accomplishments. These patients were brought to us because they survived the early months and years of life, often despite medical assurances to the contrary, with no planning for their future lives. How much better off they and their parents are when they have become self-sufficient! We would advise early removal of the myelomeningocele in order to prevent meningitis and the possibility of further disability or death. However, contrary to widespread practice, we strongly recommend immediate habilitation to prevent physical complications, but more to maintain wholesome emotional attitudes on the part of the patient and his family. Our greatest frustration has been in this area. For example, one 8-year-old who had been expected for eight years to die was brought to us with a friable sac still in place. Three years elapsed before the mass was removed and the patient and her parents were ready for correction of her contractures. She was then braced and stood for the first time in her 11 years of life. She has already started to ambulate. But for undesirable ingrained attitudes, she might have enjoyed this experience and the new vistas it opened at a much earlier age. Just as we condemn removal of the myelomeningocele without further plans for the child, so we condemn orthopedic procedures without provision for the maintenance and utilization of the gains achieved. Any procedure must reduce the disability appreciably to be justified. We have not tried actively to correct dislocated hips, for example, because they are painless and do not increase the handicap.

Summary

Forty-five children with spina bifida with myelomeningocele have been under our care for habilitation. Fifteen are now between 10 and 18 years of age. Our primary purpose has been to show that with proper medical care and habilitation these children need not die, but rather, like hundreds of veterans and civilians with spinal cord damage, they can become useful, independent, and self-supporting members of the community. A hopeful approach starting at birth is important. We feel that the results justify the effort, and we should rather tackle the many remaining obstacles than turn our backs on these children altogether.

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CLINICAL NOTES

OCULAR TOXICITY OF WHIPCIDE (3-METHYL-1-PENTYN-3-YL ACID PHTHALATE) IN HUMANS

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Whipcide (3-methyl-1-pentyn-3-yl acid phthalate) has recently gained an enviable reputation in veterinary medicine as a 95% effective agent against dog whipworm, Trichuris vulpis. It is interesting that the damage caused by these worms has apparently usually been underestimated in the past; only by the clinical improvement following their removal has it now become evident that canine whipworm disease may be characterized by any of a number of symptoms, such as diarrhea, dermatitis, emaciation, nervousness, anorexia, perverted appetite, and convulsions. The effective dose in dogs is in the range of 250 mg. per kilogram of body weight in a single dose.

Human whipworm (Trichuris trichiura) infection is similar to the canine disease in that it has been difficult to eradicate with agents so far known and its potential damage to the host has frequently been underestimated. True, there is agreement that an overwhelming infection in an infant may produce diarrhea, dysentery, intestinal obstruction, or emaciation; but it has not been so generally recognized that milder human infections also may cause diarrhea and even dysentery. Because these symptoms do occur, though, the search for an anthelmintic effective against T. trichiura should proceed. To this end, a trial with Whipcide in human infections was initiated.

Results of Treatment

Whipcide tablets, or coated granules on various dosage scales, were used to treat 143 adult Honduran mestizos with T. trichiura infections. The first 36 individuals received dosages ranging from 20 to 145 mg. per kilogram per day for four or five days, in divided daily amounts. This treatment regimen was adjudged a failure inasmuch as only about 22% had an apparent cure. When higher amounts were administered, nausea, buzzing in the ear, and slight deafness occurred, each in one instance. The remaining 107 patients received only a single dose of the drug, 60 of them in the fasted state and 47 in the nonfasted state, about two hours after a meal. The amount varied, both in the group that had fasted and the group that had not, but the majority of patients received between 100 and 200 mg. per kilogram in a single dose; only seven received quantities greater than 200 mg. per kilogram.

The over-all cure rate was about 50%, with the subjects who had not fasted doing a little better than those who had. The distribution of cures and failures seemed not to be closely related to the quantity of drug administered, many cures occurring with the lower dosages and several failures with the greater amounts. A cure rate of 50% against Trichuris with a one-dose treatment would be encouraging if the drug were nontoxic. Unfortunately, though, conjunctivitis and keratitis appeared in 16% of these individuals, and, in several instances, these ocular complications were, temporarily, severe. They occurred in 100% (all seven) of the patients who received a dose greater than 200 mg. per kilogram. They developed in 9.5% of patients who received a dose of between 100 and 200 mg. per kilogram and were noted about equally among the subjects who fasted and those who did not.

The development of these ocular lesions followed a pattern. About 12 hours after ingestion of the drug, there was burning and redness of the conjunctivas. Sometimes the process stopped at this stage, but more commonly it went on to a generalized filmy keratitis, agonizing photophobia, and ocular pain. In the more severe cases, a moderately dense corneal opacity, 1.5 to 2.0 mm. in diameter, developed near the pupil within 24 hours, and in one instance (a patient who inadvertently had received 385 mg. per kilogram) there was almost complete opacity of both corneas 24 hours after drug ingestion. In two cases, moderate deafness occurred along with the ocular complications. Fortunately, there was complete clearance of all eye lesions and of the deafness. Usually this occurred in seven to eight days, though, in the severe cases referred to, three weeks elapsed before there was complete disappearance of the keratitis.

Comment

Whipcide obviously has trichuricidal properties in the human as well as in the dog host. However, the severity of the frequent ocular complications precludes the widespread use of the orally given dose in humans. Unfortunately, the effective dose in dogs (about 250 mg. per kilogram) cannot be safely approached in humans because of this toxicity. It is interesting that no ocular toxic reaction has been reported among several hundred dogs who have received Whipcide for T. vulpis. Bunde and his associates [1] have repeatedly given dogs as much as 600 mg. per kilogram and looked carefully for toxic reactions in the eye but have never been able to detect any indication of such. Monkeys, likewise, have not developed these signs with high doses of the drug. On the other hand, a group of St. Louis Zoo chimpanzees receiving 250 mg. per kilogram did develop ocular abnormalities of the type described in our human cases.[1] From dog studies, it was believed that the first sign of a toxic reaction would have been drowsiness; the hypnotic dose in dogs is in the neighborhood of 500 mg. per kilogram or more. No such drowsiness occurred in human subjects, however.

The mode of action of Whipcide is not clear. In dogs, the intravenously administered dose is as effective as the orally administered amount. It may be, therefore, that even the orally administered drug must be absorbed into the blood stream in order to act against the worms instead of acting directly on them in the intestines. As to the toxicity of Whipcide, it

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might be hypothesized that this is due to a breakdown product and that the same breakdown products do not occur in all species; for the moment, this is the most satisfactory explanation.

Since Whipcide seems so eminently satisfactory in the treatment of dog whipworm disease, one is reluctant to discard it completely from human trials before exploring all avenues. It may be that repeated small doses will reduce heavy T. trichiura infections to light ones and be of value in this way. Or it may be that the more soluble sodium salt of Whipcide may be effective against Trichuris in enemas. These are problems that remain to be worked on.

Summary

Whipcide (3-methyl-1-pentyn-3-yl acid phthalate) was given to 143 Honduran adults with Trichuris trichiura infections. With daily orally given doses of 20 to 145 mg. per kilogram of body weight for four or five days, the drug was only 22% effective. With single doses of 100 to 200 mg. per kilogram, a 50% cure rate was achieved, but 9.5% of the patients developed conjunctivitis and keratitis. With single doses of more than 200 mg. per kilogram in seven patients, the cure rate went up to 100%, but, unfortunately, so did the rate of ocular complications.

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CONGENITAL ANOMALIES DUE TO ATTEMPTED ABORTION WITH 4-AMINOPTEROGLUTAMIC ACID

Hyman J. Meltzer, M.D., Chicago

Thiersch [1] used 4-aminopteroglutamic acid (Aminopterin), a folic acid antagonist, as an abortifacient in 12 patients for whom therapeutic abortion was indicated. The drug was given orally during the first trimester of pregnancy. An initial dose of 2 to 3 mg. was followed by 3 to 10 subsequent doses of 1 to 2 mg. at 12-hour intervals, some patients receiving as much as 20 mg. Fetal death and spontaneous abortion occurred in 10 of these patients; in the other 2 surgical evacuation became necessary, and in both live, malformed fetuses were detected, with deformities such as hydrocephalus, harelip, and cleft palate. In one of the 10 in whom abortion was delayed but finally occurred, a meningoencephalocele was detected. Thiersch suggested that, because fetal malformations occurred when early spontaneous abortion failed to take place after administration of 4-aminopteroglutamic acid, subsequent surgical evacuation of the pregnant uterus might be necessary to prevent birth of defective infants or possible monsters.

From the Department of Obstetrics and Gynecology, Michael Reese Hospital.

Report of a Case

A 25-year-old woman, para 1, gravida 2, presented herself to me with the following history. Her last menstrual period began Dec. 6, 1954. A Friedman test for pregnancy was positive on Jan. 25, 1955. For the purpose of initiating an abortion, 4-aminopteroglutamic acid had been obtained, and 40 tablets of 0.5 mg. were taken over a period of several weeks according to the dosage carried out by Thiersch. Bleeding in moderate amounts was provoked, but abortion failed to occur. The patient had no medical supervision throughout this period. A Friedman test done at this time (Feb. 24, 1955) was still positive.

The patient was first seen by me on March 1, 1955, and examination revealed the uterus to be enlarged to the size of a 10-week pregnancy and the cervix closed, with scant bleeding visible from the cervical os. General physical examination and blood cell count were essentially normal. In view of the work of Thiersch, the possibility of fetal abnormality resulting from the high dosage of this toxic drug was considered, and consultation was obtained for the consideration of a therapeutic abortion to prevent such an occurrence. However, because of the paucity of work on this matter in humans, the article by Thiersch being the only one published, it was decided to allow the patient to go to term.

She continued to bleed intermittently to about the 24th week of her pregnancy and subsequently stopped bleeding. Her prenatal course was uneventful thereafter, and on Sept. 1, 1955, after a short, easy labor a living 7 lb. 1 oz. (3,203 gm.) baby was delivered by low forceps and episiotomy. Examination of the baby revealed, besides a congenital left talipes-equinovarus, multiple skull anomalies, as evidenced by roentgenographic study. The report of the examination stated that the skull demonstrated malformation of the occipital bone characterized by anterior bending and by lacunar formation. There was, in addition, synostosis involving the lateral extremity of the lambdoid sutures. The posterior fontanel was extremely wide, and this is an expected accompaniment of craniosynostosis. In addition, the anterior fontanel was large and relatively posteriorly displaced, which is also an expected finding in premature synostosis. The impression was that the infant had (1) craniosynostosis of the lambdoid sutures and (2) lückenschädel of the occipital bone. Roentgenograms of the chest and electrocardiograms were normal. There was no evidence of cerebral agenesis at this time according to pediatric and neurological consultants. It was felt that at least six months should elapse before a prognosis could be made in that regard.

Comment

The etiology of the congenital anomalies of this newborn baby must in some measure be fixed on the injudicious use of 4-aminopteroglutamic acid. Greenhill [2] had warned that if this drug was used indiscriminately monstrosities could result in some cases. He also urged that the drug not be used for this purpose until its use could be more properly evaluated.

This case is offered as an addition to three cases of congenital anomalies of the fetus after the use of this drug for abortion presented by Thiersch, and it should serve as added warning that the use of this drug for inducing abortion should be condemned unless the patient is hospitalized, so that adequate blood studies can be made during its administration and surgical evacuation can be considered should this method fail.

1525 E. 53rd St. (15).

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THE SEARCH FOR A NONADDICTING ANALGESIC

GUEST EDITORIAL

Harris Isbell, M.D.

A potent pain-relieving drug that would not produce addiction has long been sought. Such an agent would be very valuable, since it would permit physicians to relieve pain in chronic painful conditions not amenable to definitive therapy for long periods of time. In addition to not producing physical dependence, the characteristics desired in such an agent would include analgesic potency equal to that of morphine; toxicity no greater, and preferably less, than that of morphine; absence of the undesirable side-effects of morphine, such as respiratory depression, nausea, and constipation; and, perhaps most important of all, no tolerance to the pain-relieving effect.

The search for such a drug has been carried on since 1929 under the aegis of the committee on drug addiction and narcotics of the National Research Council.[1] The original approach was based on attempts to modify the properties of morphine by altering the molecule chemically.[2] With the discovery of meperidine and methadone emphasis shifted to the synthetic pain-relieving drugs. More recently attention has been given to the analgesic properties of the opiate antagonist nalorphine[3] and to mixtures of opiates and nalorphine.[3a]

So far, the object of this search has not been attained. No potent pain-relieving drug has been discovered that is not characterized by the development of tolerance and dependence, except insofar as nalorphine may meet the requirements. In general, enhancement of analgesic potency has been accompanied by an equal increase in the dose of the drug that will satisfactorily support dependence.

Six different chemical groups of analgesic drugs are now known[4]: the morphine, morphinan, meperidine, hexamethyleneimine, methadone, and dithienylbutenylamine families. At first glance there appears to be litle resemblance between the chemical structures of some of these classes of drugs. Examination of molecular models shows that, with some imagination, a central phenyl-piperidine nucleus can be made out in all six classes.[4] It may be possible that the phenyl-piperidine structure is necessary for analgesia of the morphine type and is always associated with the development of tolerance to the pain-relieving effect, and with the development of physical dependence.

Such a gloomy view is, however, not necessarily justified. It seems reasonable to assume that drugs that possess chemical structures similar to those drugs already known to be addicting would themselves produce addiction. The synthetic analgesics that are available have been discovered either by synthesis of a structure similar to that of some drug already known or have been discovered accidentally. The latter compounds were originally synthesized for purposes other than analgesia. In the course of pharmacological screening of these drugs it was noted that they induced the Straub reaction, a typical morphine-like effect, in mice. This led to further investigation, which showed that the drug induced a fairly complete pattern of morphine-like effects in lower animals, such as analgesia in rats, excitement in cats, and sedation in monkeys and dogs. Thus the chemical and biological methods by which the new analgesics have been discovered have been selecting drugs that are closely related to morphine pharmacologically and that are therefore, as one might expect, also addicting.

A change in approach seems indicated. Drugs with the phenyl-piperidine structure should be avoided, and drugs that give a fairly complete pattern of morphine-like effects in lower animals should be discarded. We should seek agents that are analgesics but that otherwise are not morphine-like. One of the great difficulties in attempting this line of investigation is the lack of a simple method for screening analgesics in lower animals that would reflect accurately the effect of the drug on the all-important subjective reaction to pain in patients. Methods currently used for screening analgesics measure predominantly a reflex that is mediated through the spinal cord. Effects on this reflex, though usually correlated with analgesia in man, do not necessarily predict the effects on reaction to pain and, hence, the potential clinical usefulness of the agents under study. It may be that a number of promising drugs have already been discarded because of negative or weak analgesic tests in animals. An example is nalorphine; although nalorphine is a very weak analgesic, it has recently been shown that it is as effective as morphine in relieving postoperative pain.[5]

Since it is known that physical dependence on nalorphine does not develop,[5] one might say that a nonaddicting analgesic has been found. Unfortunately, the side-effects of nalorphine, particularly disturbing mental reactions, may preclude clinical use. It is also not known whether tolerance to the analgesic effect of nalorphine develops under conditions of chronic use. It may also be possible that modifications in the nalorphine structure might reduce some of the very undesirable side-effects while retaining the analgesic effects and lack of addictive potentialities. Investigations along these lines are currently under way.

From the National Institute of Mental Health Addiction Research Center, U. S. Public Health Service Hospital, Lexington, Ky.

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REGULATION ALLOWING TAX DEDUCTION OF EXPENDITURES FOR REFRESHER COURSES

Physicians should be gratified to learn that efforts to get the Internal Revenue Service to issue a regulation allowing physicians to deduct their expenditures in taking postgraduate "refresher" courses have now met with success (see this issue, page 1260). A "proposed" regulation just issued will become "final" according to the tax laws sometime after August 9. As a practical matter, "proposed" regulations are effective when issued, although they are subject to minor modifications of language before becoming final.

The regulation provides that expenditures for education are deductible if they are for a "refresher" or similar type of course taken to maintain the skills directly and immediately required by the physician in his employment or business. An educational course to be covered should be designed for established medical practitioners to help them keep abreast of current developments in the profession; it should be of short duration; it should not be taken on a continuing basis; and it will not carry academic credit. Education designed to prepare the practitioner to enter a specialty will not be acceptable. This example is given in the regulation: A, a general practitioner of medicine, takes a course of study to become a pediatrician. B, a general practitioner of medicine, takes a two-week "refresher" type of course reviewing developments in several specialized fields, including pediatrics, for the purpose of carrying on his general practice. A's expenses are not deductible. B's expenses, including any transportation expenses and living expenses while away from home, are deductible.

When a taxpayer travels away from home primarily to obtain "refresher" education, his expenditures for travel, meals, and lodging while away from home are deductible. However, expenses for personal activities such as sightseeing, social visiting or entertaining, or other recreation will not be allowed. When the purpose of the travel is primarily personal, expenditures for travel, meals, and lodging will be disallowed, although presumably tuition for a bona fide refresher course will be allowed. In determining whether the primary purpose of the travel is personal, the relative amount of time devoted to personal activity as compared with the time devoted to educational purposes will be considered.

The search for medical knowledge is never-ending, and the horizon of achievement is ever-shifting. The practicing physician must necessarily engage in a continuous process of learning throughout his professional life. Physicians cannot adequately serve their patients unless their fund of medical knowledge is always kept fresh and intact. They must constantly be informed of all developments that affect their technical competence. The expenses of maintaining professional competence easily qualify as deductible business expenditures. Obviously, the amounts paid are "directly connected" with a business, as the tax law requires. We are pleased that the Internal Revenue Service has taken this step to remove the inequity that existed against physicians.

POSTGRADUATE MEDICAL EDUCATION

Elsewhere in this issue of THE JOURNAL is the annual list of postgraduate courses for practicing physicians for the year beginning September 1, 1956. This list was compiled by the Council on Medical Education and Hospitals from replies to its questionnaires by the 82 American medical schools, the 1,400 hospitals approved for internship and residency training, and the various national, state, and county medical societies.

The need for some kind of continuing education to keep abreast of advances in medical knowledge has long been recognized by the thoughtful practicing physician as essential to his own ability to care best for his patients. The past decade had brought an almost revolutionary increase in such knowledge, springing largely from research in the basic sciences. This has in turn had a tremendous influence on the methods and techniques of diagnosis and therapy. Each year seems to accelerate this change and accrual.

The survey on Postgraduate Medical Education in the United States, 1952-1955, by the Council on Medical Education and Hospitals reported in THE JOURNAL last year by Douglas D. Vollan [1] showed five ways in which practicing physicians continue their education: (1) reading of the medical literature, (2) consultations with colleagues, (3) hospital staff and department conferences, (4) national, state, and local medical society meetings, and (5) formal postgraduate courses. Of these, medical reading was most preferred by the physicians answering, and postgraduate courses were the second preference. Postgraduate medical education, of which the courses are one form, has become the third and continuing phase of medical education, vital to physicians in general practice as well as to those confining their practice to a specialty. Medical education is becoming a lifelong process, with the M.D. degree terminating the first phase, the internship and residency constituting the second or graduate phase, and the postgraduate third phase continuing each year of the physician's professional career.

The reports of medical discoveries and changes in basic science concepts flooding the literature are of value to sick people only when their own physicians become aware of these discoveries and learn the uses of the new techniques. The essence of professionalism is "know-why" as well as "know-how." A function of the better postgraduate courses is the provision of concentrated information on new developments in medicine correlated with the basic science background required.

The list of postgraduate courses is compiled and presented to provide physicians a single reference that they may use as a point of departure for eliciting further information about courses from the sponsors. The courses in the list are not evaluated by the Council on Medical Education and Hospitals, unlike the status of the lists of approved medical schools and hospital training programs. The information provided is that submitted by the sponsor. The list should, however, serve a useful reference function for those physicians seeking formal courses on nearly any subject for lengths of time from one day to several months.

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THE PRESIDENT'S PAGE

A MONTHLY MESSAGE

Many times I have been asked: "What is your platform for 1956-1957?" "What are you going to try to accomplish in the next year?" "What are your aims and objectives?" First, let me say that it is my desire and ambition to have everyone in American medicine working together as a team and in the "team play" spirit. Medicine is too big and too great for any of us to be going our separate ways, and one person or one branch of medicine cannot carry the load alone. As President of the American Medical Association, I certainly will need your personal help and the assistance of each local and state society. I not only need it, but seek and appeal for it.

Your A. M. A. too must have the aid of all members if it is to succeed in its projects and endeavors. Likewise, all of us will require the assistance of those in allied medical fields. Only working together can we accomplish more great things for medicine and better health for the American people. This need for closer liaison and better understanding among all groups connected directly or indirectly with improving the health of our people is not something new. It has been an objective of other A. M. A. presidents, and it is an objective of the A. M. A. In a way, all my objectives are tied to this single, giant aim of everyone working together. Let me enumerate them:

1. Resolve difficulties arising between the A. M. A. and other groups. All of us, I believe, must take the time and effort to overcome problems with professional, patriotic, fraternal, civic, business, industrial, labor, or philanthropic organizations.

2. Promote discussion of the mutual problems of the profession and hospitals and of the profession and the various allied groups of medicine.

3. Strive for better doctor-patient relations and a clearer public understanding of the problems of medicine.

4. Emphasize that doctors have a real and legitimate interest in legislation. The American Medical Association must continue to support legislation on health and medical problems in keeping with sound economic and social progress and with the preservation of a free government in which the emphasis is on individual efforts and enterprise, rather than on subsidy, handout, and federal interference. We must not seek private favors. We must support or oppose legislation because of our interests in the best possible medical care for the people and because of our intense desire to see freedom survive.

5. Encourage the development of health facilities where they are presently inadequate. I personally do not believe there is a "doctor shortage" as has been charged by some critics. Some rural communities do not have doctors, but often this is just a matter of scanty population. I believe that doctors can be attracted to small communities if good facilities are provided. By working with communities, I am sure local and state societies can help to fill the doctor and/or physical facility needs of almost any area in the country.

6. Stimulate the interests of more young doctors in medical problems and in their solution at local, state, and national levels. In my travels as President-Elect, I went to medical schools for the purpose of telling students more about the A. M. A., its functions, and its objectives. I will continue to talk to students wherever I can, hoping to interest more of them in local and state medical societies and in the A. M. A. Our societies have a great deal to offer all young men and women of medicine, and I think we should all make an extra effort to boost the interest of our fellow physicians in the medical activities at the local, state, and national levels.

7. Alleviate the misunderstanding and misinformation existing among physicians and among people outside the profession. One conclusion of the nationwide public opinion poll conducted for the A. M. A. by an independent research firm was that many criticisms by doctors of the Association were based on lack of information or actual misunderstanding of basic ideas and procedures.

These twin ailments of misinformation and misunderstanding exist in other areas, too. For example, the special committee to review the functions of the Joint Commission on Accreditation of Hospitals reported at the Annual Meeting in June that "much of the criticism [of the Joint Commission] is based on misunderstanding and misinformation." By being informed on the issues pertinent to our profession, to medicine, and to our societies, we can aid immensely in curing these twin ailments.

As president of the A. M. A., I realize the great responsibility I have in trying to combat and clear up these several problems listed here. And I pledge to do all in my power for you, the profession, and the Association. I am aware of the high position and important duties of this office of President, and I sincerely appreciate the trust you have placed in me. I earnestly pray that I can accomplish as much for medicine as my illustrious predecessors and that I can be a worthy spokesman for your American Medical Association.

DWIGHT H. MURRAY, M.D.,
Napa, Calif.

ORGANIZATION SECTION

COUNCIL ON MEDICAL PHYSICS

The newly created Council on Medical Physics had its organizational meeting at A. M. A. headquarters on June 15-16, 1956. The new Council will continue some of the activities of the former Council on Physical Medicine and Rehabilitation as part of its service program to the medical profession. The Council will carry on activities in the field of medical apparatus, instruments, and devices. This program is under serious consideration at the present time, and a statement will appear in the Council columns of THE JOURNAL in a subsequent issue.

INTERNATIONAL MEDICAL FILM PROGRAM

A program of foreign-made medical films will be an added feature of the 106th Annual Meeting of the American Medical Association in New York City in June, 1957. Films for the program will be selected from applications submitted by authors and producers from other countries. Applications for the program and further information can be obtained from the American Medical Association, Motion Pictures and Medical Television, 535 N. Dearborn St., Chicago 10. This film program will be presented in cooperation with Johnson & Johnson, New Brunswick, N. J., as a part of the scientific program.

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LOANS BY SEARS-ROEBUCK FOUNDATION

Assistance in establishing 11 new practice units has been given to 13 physicians in the form of loans by the Sears-Roebuck Foundation. The loans, ranging from $3,000 to $15,000, were made under the 1956 Plan of Assistance of the foundation, through an annual revolving assistance fund grant. The plan (*J. A. M. A.* 159:38 [Sept. 3] 1955) is intended to help physicians supplement personal funds or local financing that does not cover the entire cost of establishing practices. The foundation hopes especially to be of help in the distribution of doctors in areas where present medical care or facilities are inadequate. The latest loans, totaling $71,500, went to physicians in Georgia, South Carolina, central Colorado, southern Michigan, Oregon, South Dakota, northern Minnesota, the Rio Grand Valley of Texas, and suburban New Haven, Conn.

The first annual grant of $125,000 was made available in 1955. A total of $172,500 has been loaned to 31 physicians in 17 states, including the latest group. So far, most loans have been given to graduating interns just establishing themselves in critical areas and to established physicians in rural areas where rebuilding is necessary to expand currently inadequate medical care facilities. Applications now are being taken for the last half of this year, when approximately $80,000 will be available for loans. Those received before Oct.

*Special committees.

1 will be considered, and loan announcements will be made before Dec. 15. Applications can be obtained from state, county, and local medical societies. The foundation administers the plan with screening and selection of applicants done by a 17-member advisory board of physicians from all sections of the country, named by the A. M. A. Board of Trustees.

FEDERAL MEDICAL LEGISLATION

Second Session, 84th Congress

Liberalization of Hill-Burton Act

The present Hill-Burton hospital construction act makes a governmental agency or a nonprofit corporation or association that owns and operates a nonprofit hospital eligible for construction grants for diagnostic or treatment facilities. Senator Mundt (R., S. D.), in S. 3853, would also make eligible "a nonprofit corporation or association which receives, from the State in which any such corporation or association is located or from any political subdivision of such State, any funds for the operation of a mental health center or clinic." Senators Flanders (R., Vt.), Bridges (R., N. H.), Cotton (R., N. H.), Payne (R., Maine), Smith (R., Maine), and Langer (R., N. D.), in S. 4033, would make eligible Hill-Burton hospital construction funds for erecting and equipping of diagnostic or treatment centers operated by "a nonprofit corporation or association having contractural affiliation with a nonprofit hospital . . . approved for intern or resident training." These measures were referred to the Committee on Labor and Public Welfare.

Registration of Welfare and Pension Plans

Senators Douglas (D., Ill.), Murray (D., Mont.), and Ives (R., N. Y.), in S. 3873, would require the registration with the Securities and Exchange Commission of all types of employee pensions or welfare benefit plans covering 25 or more employees. Organizations with plans that cover more than 100 employees would be required to file an annual report giving, in detail, expenses, salaries, fees, reserve, and other pertinent facts. The Securities and Exchange Commission would be given broad investigatory powers and, whenever it appears that the law is being violated or that embezzlement is present, could transmit such charges to the attorney general for prosecution. An advisory council would be provided to make studies, reports, and recommendations. This measure was referred to the Committee on Labor and Public Welfare.

Representative Thompson (D., N. J.), in H. R. 11581, has introduced a similar bill except that registration and annual reporting of welfare and pension plans would be made to the Secretary of Labor instead of the Securities and Exchange Commission. This bill was referred to the Committee on Education and Labor.

From the Washington Office of the American Medical Association.

Extension of Phase of 1954 Vocational Rehabilitation Act Amendments

Senator Magnuson (D., Wash.), in S. 3875, and Congressman Dempsey (D., N. Mex.), in H. R. 11369, would extend to June 30, 1957, that part of the Vocational Rehabilitation Act that pertains to grants to the states and other nonprofit organizations and agencies who are "planning, preparing for, and initiating . . . a substantial nationwide expansion of vocational rehabilitation programs in the States." The Senate bill was referred to the Committee on Labor and Public Welfare and the House bill to the Committee on Education and Labor.

Narcotics Control Act of 1956

Congressman Christopher (D., Mo.), in H. R. 11363, has introduced a narcotics control act, identical with S. 3760, previously reported. The use of heroin in the United States would be outlawed, and stiffer penalties for sale and smuggling of narcotics would be mandated. This act was referred to the Committee on the Judiciary.

Congressman Boggs (D., La.), in H. R. 11619, introduced, and the House promptly passed, a narcotic control bill similar to his previous bill, H. R. 11106, except that his more recent measure prescribes penalties against persons who use communication facilities in illegally selling or distributing narcotic drugs, omits the section of the bill that permits wiretapping, and exempts the Commonwealth of Puerto Rico unless its legislature gives consent. Congressman Baker (R., Tenn.) introduced, in H. R. 11620, a bill identical with H. R. 11619. H. R. 11619 and H. R. 11620 were referred to the Ways and Means Committee.

National Library of Medicine

Congresswoman Church (R., Ill), in H. R. 11364, Senator Dirksen (R., Ill.), in S. 3949, and Congressmen McVey (R., Ill.), in H. R. 11445, and Hoffman (R., Ill.), in H. R. 11573, have introduced bills identical with a series previously reported, which would establish a National Library of Medicine to be located in the city of Chicago. The books and periodicals of the Armed Forces Medical Library would be transferred to this library. The House bills were referred to the Committee on House Administration and the Senate bill to the Committee on Labor and Public Welfare.

Congressman Priest (D., Tenn.), in H. R. 11524, would transfer the Armed Forces Medical Library to the Public Health Service and call it the National Library of Medicine. H. R. 11524 is similar to S. 3430, previously reported and passed by the Senate. This measure was referred to the Committee on Interstate and Foreign Commerce.

Omnibus Health Bills

Senators Hill (D., Ala.), Smith (R., N. J.), Murray (D., Mont.), Ives (R., N. Y.), Neely (D., W. Va.), Purtell (R., Conn.), Lehman (D., N. Y.), Kennedy (D., Mass.), Bender (R., Ohio), McNamara (D., Mich.), and Allott (R., Colo.), have introduced an Omnibus Health Bill, S. 3958, which would provide (1) graduate traineeships for public health personnel with awards directly to the individuals or to the institutions; (2) advanced traineeships for professional

nurses for training as teachers, administrators, or supervisors through colleges; (3) earmarked funds for practical nurses training through the Federal Vocational Education Program; (4) extension of the Hospital Construction Act (Hill-Burton) for two additional years; and (5) mental health grants for studies and research projects for the development of improved methods of diagnosing and treating mental illness and administering such programs. This measure was passed by the Senate. Congressman Priest (D., Tenn.), in H. R. 11549, has introduced a similar measure, except that titles 4 and 5 are omitted. Hearings were promptly held before the Interstate and Foreign Commerce Committee on this bill.

Bureau of Older Persons

Senator Magnuson (D., Wash.), in S. 3932, and Congressman Magnuson (D., Wash.), in H. R. 11577, Rhodes (D., Pa.), in H. R. 11638, and Thompson (D., N. J.), in H. R. 11794, have introduced identical measures with H. R. 8863 and three other measures previously reported. These measures would establish a bureau of older persons in the Department of Health, Education, and Welfare to authorize federal grants to assist in the development and operation of studies and projects to help older people. The Senate bill was referred to the Committee on Labor and Public Welfare, and the House bills to the Committee on Education and Labor.

Mosquito Research and Control Grants

Congressman Rivers (D., S. C.), in H. R. 11451, has introduced a mosquito control measure identical to seven previously reported bills. They propose to "provide for research and technical assistance relating to the control of saltmarsh and other pest mosquitoes of public health importance and mosquito vectors of human disease." The administration would be vested in the Surgeon General of the Public Health Service. This measure was referred to the Committee on Interstate and Foreign Commerce.

Council on National Fitness

Congressman Murray (D., Ill.) would establish a council on national fitness by H. R. 11521. The council, appointed by the President, would study (1) the existing and long-range effects of various forms of physical exertion on individuals at various age levels; (2) the medical, physical, physiological, emotional, social, and educational aspects of all sports at various age levels, and (3) the amount of time that should be allotted from the school day in supervised physical educational programs at various age levels. Within one year after appointment, the council would report to the President results of its studies, with recommendations for the program to be adopted by the schools, local governments, and industry, to promote and advance physical education and national fitness. This measure was referred to the Committee on Interstate and Foreign Commerce.

Commission on Doctor Shortage in U. S.

Congressman Dorn (R., N. Y.), in H. R. 11518, proposes to establish a commission to study the "shortage of doctors of medicine in the United States." Particular attention would be given to "(1) The policy of medical colleges in the United States of limiting the number of students admitted to study medicine; (2) The number of doctors of medicine being graduated annually from medical colleges in the United States; (3) The extent to which hospital administrators in the United States are required to seek doctors of medicine in foreign countries for the purpose of inviting such doctors to serve internships in the United States; (4) How many citizens of the United States who cannot gain admittance to medical colleges in the U. S. are going to foreign countries to study medicine; and (5) The extent to which the several States of the United States and the District of Columbia permit doctors of medicine who have been graduated from medical colleges in foreign countries to practice medicine in such States or the District of Columbia. . . . The Commission shall submit to the Congress interim reports at such time, or times, as the Commission deems necessary, and shall submit to the Congress its final report not later than one year after the date of enactment of this Act, at which time the Commission shall cease to exist." H. R. 11518 was referred to the Committee on Interstate and Foreign Commerce.

Educational Expense Tax Deductions

Congressman Hayworth (D., Mich.), in H. R. 11545, has introduced an identical measure with Senator Fulbright's S. 3711, which would allow the taxpayer, in computing his income tax, to deduct the amounts paid to educational institutions above the secondary level for tuition, books, and supplies for himself or his dependents if students. This measure was referred to the Ways and Means Committee. Senator Magnuson (D., Wash.), in S. 4061, would allow an additional exemption of $600 each for the taxpayer, child, and spouse, if such taxpayer, child, and spouse is a full-time student in college. This measure was referred to the Committee on Finance.

Report of Treaty Effects Before Ratification

Senator Bricker (R., Ohio), in S. Res. 282, would amend the standing rules of the Senate to require that "When a treaty is reported from a committee recommending the advice and consent of the Senate to ratification, the report of the committee shall state to what extent, if any, ratification thereof will operate to supersede or modify an Act of Congress." If such treaty is ratified, the report will be referred to the Judiciary Committee for annotating the U. S. Code. S. Res. 282 was referred to the Committee on Rules and Administration.

Civilian Federal Employees Health Insurance

Congressmen Murray (D., Tenn.) and Rees (R., Kan.), in H. R. 11630, would provide major medical expense insurance for government employees and their dependents, to be paid for by the government. This measure is similar to H. R. 10436, introduced by Congressman Murray, previously reported. The latter measures differ from the previously reported bill in that the Comptroller General of the United States is directed to study the advisability of payroll deductions for health insurance. If found feasible, voluntary payroll deductions would be authorized for health insurance. Hearings were promptly held before the House Post Office and Civil Service Committee.

MEDICINE AND THE LAW

TAX DEDUCTION EXPENSES FOR EDUCATION

The Bureau of Internal Revenue has issued a proposed regulation that will permit physicians to take a federal income tax deduction for expenditures in taking short "refresher" courses within their field of practice. The regulation, as a practical matter, is effective now, although it is subject to minor changes before becoming final. This regulation, in substance, conforms to a decision of the Circuit Court of Appeals for the second circuit in 1953 in a case involving a lawyer. Many of the district directors of the Bureau of Internal Revenue in various parts of the United States have refused to apply the decision to physicians.

In the case referred to, *George G. Coughlin* v. *Commissioner of Internal Revenue*, 203 Fed. (2d) 307, the question was presented of whether Mr. Coughlin, a practicing lawyer who handles tax matters, could deduct expenses of tuition, travel, and board and lodging, amounting to $305, incurred in attending a series of lectures given by the New York University Institute on Federal Taxation. The American Medical Association, through its attorneys, filed a brief in the case as *amicus curiae*. The attorneys for the American Medical Association contended that the "ordinary and necessary expenses" of a trade or business include expenditures incurred by a physician in keeping abreast of current developments so that he may properly pursue his calling. This position is now recognized by the Internal Revenue Service in its regulation, which is set forth in full below.

§ 1.162-5. **Expenses for education.**—(a) (1) In general, a taxpayer's expenditures for his education are personal and are not deductible.

(2) Expenditures for education which are made primarily for the purpose of, or which have the result of, obtaining a position for the taxpayer; qualifying him to enter an employment or otherwise become established in a trade or business or a specialty therein; establishing or enhancing substantially his reputation in his trade or business; substantially advancing him in earning capacity, salary, status, or position; or primarily fulfilling the general cultural aspirations or other personal pusposes of the taxpayer are personal expenditures and are not deductible.

(b) As an exception to the general rule in paragraph (a) (1), expenditures by a taxpayer for his education are deductible under section 162 if—

(1) The expenditures are ordinary and necessary for the maintenance of the taxpayer's employment or other trade or business or specialty therein and are directly and immediately related thereto; and

(2) The degree of business necessity and relationship of the expenditures clearly outweighs any personal aspects of the expenditures.

In no event, however, are expenditures which fall under paragraph (a) (2) deductible.

(c) Expenditures by a taxpayer for his education may be deductible under the provisions of paragraph (b) if they are for education of a "refresher" or similar type necessary to maintain (but not to advance) the skills directly and immediately required by the taxpayer in his trade or business. Among the factors which will be considered as indicating that education is of a refresher or similar type are that it is especially designed for, and attended primarily by, established practitioners or members of a trade or business for purposes such as keeping abreast of current developments in such trade or business; is of short duration; is not taken on a continuing basis; and does not carry academic credit. Similarly, among factors indicating that the education is not of a refresher or similar type are that it is generally designed for persons preparing to enter an employment or otherwise become established in a trade or business or specialty therein; is of more than short duration; is for the continuing improvement and advancement of the taxpayer's talent or skills; or carries academic credit.

(d) Expenditures made by an employee for his education as a requisite to the continued retention of his salary, status, or employment as a result of an express requirement of his employer may be deductible under the provisions of paragraph (b) whether or not the education is of a refresher or similar type. Thus, expenditures for courses which carry academic credit may be deductible under the provisions of this paragraph. However, expenditures are not deductible under the provisions of this paragraph if, in more than an incidental and relatively minor manner, they have the result of obtaining a different position for the taxpayer; qualifying him to enter an employment or otherwise become established in a trade or business or specialty therein; establishing or enhancing substantially his reputation in his trade or business; or substantially advancing him in earning capacity, salary, status, or position. A taxpayer is considered to have made expenditures as a result of an express requirement by his employer, as a requisite to continued retention of his salary, status, or employment only if the requirement is imposed primarily for a bona fide business purpose of the taxpayer's employer and not primarily for the taxpayer's benefit, and the education has a direct relationship to the duties of the taxpayer's present position.

(e) In general, a taxpayer's expenditures for travel as a form of education shall be considered as primarily personal in nature and therefore not deductible.

(f) Where a taxpayer travels away from home primarily to obtain education the expenses of which are deductible, his expenditures for travel, meals, and lodging while away from home are deductible. However, where as an incident of such trip the taxpayer engages in some personal activity such as sightseeing, social visiting or entertaining, or other recreation, the expenses of such personal activity constitute nondeductible personal or living expenses and will not be allowed as deductions. Where the purposes of a taxpayer's travel away from home are primarily personal, the taxpayer's expenditures for travel, meals, and lodging will be disallowed whether or not the taxpayer participates incidentally in some educational pursuit meeting the requirements of paragraph (c) or (d) of this section. Whether the purposes of a particular trip are primarily personal or primarily to obtain education meeting the requirements of paragraph (c) or (d) of this section will depend upon all the facts and circumstances of each case. An important factor in making the determination will be the relative amount of time devoted to personal activity as compared with the time devoted to educational pursuits. Expenses in the nature of commuters' fares are not business expenses and are not deductible.

(g) The provisions of this section may be illustrated by the following examples:

Example (1). A is employed as a bookkeeper by an accounting firm. In order to advance in salary he takes courses in accounting and becomes a certified public accountant. A's expenditures for such courses and for any transportation expenses and living expenses while away from home are not deductible.

Example (2). A, a general practitioner of medicine, takes a course of study to become a pediatrician. B, a general practitioner of medicine, takes a two-week "refresher" type course reviewing developments in several specialized fields, including pediatrics, for the purpose of carrying on his general practice. A's expenses are not deductible. B's expenses (including any transportation expenses and living expenses while away from home) are deductible.

Example (3). A, a teacher, is expressly required by the regulations of the State board of education either to read a list of books or take certain summer school courses to retain his employment. A fulfills this requirement by taking the summer

school courses. The courses do not qualify A to advance substantially in earning capacity, salary, status, or position. A's expenses are deductible, including transportation expenses and living expenses while away from home.

Example (4). A, a teacher, takes a summer school course which is required by his employer in order to retain his employment. The course qualifies A to advance substantially in salary. A's expenses are not deductible.

Example (5). A, a self-employed tax consultant, decides to take a one-week "refresher" type course in taxation, which is offered in City X, 500 miles away from his home. His primary purpose in going to X is to take the course, but he also takes a side trip to City Y (50 miles from X) for one day, takes a sightseeing trip while in X, and entertains some personal friends at his hotel. A's transportation and living expenses will be allocated between his educational pursuits and his personal activities. Those expenses which are entirely personal, such as entertaining friends, will not be deductible to any extent.

Example (6). The facts are the same as in example (5), except that A's primary purpose in going to City X is to take a vacation. This purpose is indicated by the fact that he spends only one week attending the "refresher" type course and devotes five weeks entirely to personal activities. A's entire transportation expenses and living expenses while away from home be disallowed. [Reg. § 1.162-5.]

CORPORATE PRACTICE OF MEDICINE: GROUNDS FOR FORFEITURE OF PHYSICIAN'S LICENSE

The Texas State Board of Medical Examiners canceled the license of a doctor to practice medicine in the state of Texas.[1] At the hearings before the Board and the District Court it was established that the doctor was employed by a clinic for a salary of $500 per month; he received no fees; the clinic was owned by an individual who was not a doctor of medicine; no doctor of medicine owned any interest in the clinic; the doctor performed medical services for the clinic; and the fees for such services were collected by the clinic.

The statutes of Texas enumerate as a ground for denying, forfeiting, or revoking a license to practice medicine the permitting or allowing of another "to use his license or certificate to practice medicine in this state, for the purpose of treating or offering to treat sick, injured or afflicted human beings."

After disposing of certain questions concerning alleged procedural irregularities, the Civil Court of Appeals of Texas pointed out that it had never before been called on to determine whether conduct as above described fell within the purview of the statute and was therefore grounds for the revocation of a medical license. Noting that there is an abundance of authority in other jurisdictions holding similar conduct to be contrary to statute, the court reviewed these cases and quoted from *U. S. vs American Medical Association*, 110 F (2) 703 as follows:

> The practice of medicine in the District of Columbia is subject to licensing and regulation and, we think, may not lawfully be subjected to "commercialization and exploitation." As well said in *People vs United Medical Service*, 200 N. E. 157, the practice of medicine requires something more than the financial ability to hire competent persons to do the actual work. And so it has been held under varying conditions, speaking generally, that where a corporation operates a clinic or hospital, employs licensed physicians or surgeons to treat patients, and itself receives the fee, the corporation is unlawfully engaged in the practice of medicine. This is true because it has universally been held that a corporation as such lacks the qualifications necessary for a license and without a license, its activities become illegal. It has also been said that the relationship of the doctor and patient, well recognized in the law, would be destroyed by such practice.

The court cites analogous cases relating to the practice of law by corporations and quotes from a Minnesota case that holds that neither a corporation nor a layman can practice law directly or indirectly by hiring a licensed attorney for the benefit of others or for the benefit or profit of such hirer. On the weight of authority as applied to the undisputed facts of the case the Texas Civil Court of Appeals held that the conduct of the doctor was contrary to the statutes of Texas and was grounds for forfeiture of license. The action of the Texas State Board of Medical Examiners canceling the license of the doctor to practice medicine in the state of Texas was sustained.

1. *Rockett vs Texas State Board of Medical Examiners* 287 S. W. (2d) 190 (Texas, 1956).

Effects of Cosmic Rays.—The effect of cosmic rays on matter at high altitudes can, broadly speaking, be divided into two categories: atomic and nuclear. . . . Atomic effects are produced by energetic cosmic ray particles which remove an electron from one of the electron shells of a target atom (the so-called ionization process) or lift an electron from a low lying level to a high level (the so-called excitation process). The process of ionization and excitation thus transfers energy to the atoms of the target matter, which may be tissue, metal, or perhaps a semi-conductor like a transistor used in electronic equipment. The result may be to break chemical bonds in molecules or to join others; in tissue, for example, because of the preponderance of water the main effect would be the production of H and OH radicals with a subsequent formation of H_2O_2. These effects can be reproduced to a large extent in the laboratory. They can also be expressed in terms of radiation dosages for which safe limits have been derived from experience. . . . Energetic cosmic ray particles at high altitudes, particularly protons, neutrons, and nuclear pi-mesons, can disintegrate nuclei with which they collide. At sea level most of the cosmic radiation is made up of non-nuclear mu-mesons, which do not produce nuclear disintegrations. . . . Nuclear interactions occur roughly in the ratio of one to ten million compared to atomic interactions. However, they are also a million times more energetic. In a nuclear disintegration the incoming cosmic ray particle uses up a portion of its kinetic energy (which may be of the order of several Bev or billion electron volts) to break the bonds between protons and neutrons inside the nucleus. A number of these may be ejected, either singly, i. e., as protons or neutrons, or in combinations as deutrons, tritons, He^3 or He^4 nuclei, and even heavier fragments. The remaining nucleus will have a number of protons and neutrons given by the initial number minus those knocked out, e. g., an iron nucleus, consisting of 26 protons and 30 neutrons, may end up as chlorine. In these nuclear disintegrations part of the kinetic energy of the primary radiation is transformed into matter, occasionally in the creation of pi-meson particles. The protons, neutrons, and pi-mesons will leave the nucleus with large energies, of the order of millions of electron volts. They will produce atomic effects just like the cosmic ray primaries. The production of secondaries by the primaries, therefore, leads to an enhancement of the total ionization. This explains why the ionization at altitudes of from 50,000 to 75,000 feet is greater than it is at the top of the atmosphere where only the primary radiation itself is effective.—S. F. Singer, Ph.D., Cosmic Ray Effects on Matter at High Altitudes, *The Journal of Aviation Medicine*, April, 1956.

MEDICAL NEWS

CALIFORNIA

Health Education Workshop.—Sponsored by 10 San Diego County agencies, the fifth annual Health Education Workshop will be held at San Diego State College, Aug. 6-17. Designed for students, teachers, school administrators, school nurses, physicians, and others interested in school health, the workshop will consider methods and techniques of education in health for all grades and for the health instruction program in such related areas as social studies, science, and physical education. Fred V. Hein, Ph.D., consultant in school health, Bureau of Health Education, American Medical Association, will serve as one of the consultants to the workshop. Tuition fees for the two-week course will be $17, and two units of upper division credit may be earned. Information may be obtained from Miss Angela Kitzinger, Chairman, Health Education Department, San Diego State College, San Diego 15.

Symposium on Heart Disease.—The Los Angeles County Heart Association will conduct its 26th annual Professional Symposium on Heart Disease Oct. 10-11 at the Wilshire-Ebell Theater. Daily sessions will be held from 9:30 a.m. to 12 noon and from 1:45 p.m. to 5:30 p.m. An evening panel on atherosclerosis and arteriosclerosis Wednesday will have as collaborators Dr. David Barr, New York; Dr. Meyer W. Friedman, San Francisco; Dr. John W. Gofman, Berkeley; Ancel B. Keys, Ph.D., Minneapolis; Dr. William Likoff, Philadelphia; and Dr. Jeremiah Stamler, Chicago. Dr. Likoff will lead the discussion and open forum on surgery of acquired cardiovascular disease, and Dr. Bernard Lown of Boston and Dr. Friedman will present papers on digitalis therapy in management of therapeutic problems. Investigators and clinicians who wish to present papers on the aforementioned subjects should send their manuscripts to the Los Angeles County Heart Association no later than Aug. 1.

Personal.—Dr. Raymond E. Stannard, formerly of Morro Bay, is serving as chief health adviser of the U. S. Operations Mission in Kathmandu, Nepal.——Dr. Romeo J. LaJoie, Los Angeles, has been named a fellow of the Royal College of Physicians of Edinburgh, Scotland.——The Howland medal and award of the American Pediatric Society were recently bestowed on past-president Dr. Harold K. Faber, emeritus professor of pediatrics, Stanford University School of Medicine, Stanford University, San Francisco. Dr. Faber is a former president of the San Francisco County Medical Society.——Dr. Graham Gilmer, Orange, was recently honored with a P. T. A. life membership in recognition of his work for youth. Dr. Gilmer is active in Boy Scout and Y. M. C. A. work, having served as camp physician at Camp Osceola for several years.——Dr. Harry N. March, Grass Valley, recently sailed for the Island of Tahiti, where he will fill a three-year appointment to the staff of the Filariasis Institute, which is conducted by the University of California at Los Angeles School of Medicine as a research project in tropical diseases.——Dr. James H. Wagner was recently honored by the Selma Masonic Lodge in observance of the 50th anniversary as a past-master of the organization.

ILLINOIS

Scholarships in Nursing.—Dr. Otto L. Bettag, director of the state department of public welfare, announces that about 200 nursing school scholarships will be awarded for the fall term of 1956. They are available for beginning students in nurse's training for a period of three years; two-year scholarships for second-year student nurses; and one-year scholarships for third-year or senior student nurses. Also, these scholarships are open to students for the last three years of a college or university degree program in the field of nursing. The applicant must be a high school graduate between the ages of 17 and 35, a citizen of the United States, a resident of Illinois, and qualified for admission to any one of the 72 approved schools of nursing in Illinois. Scholarships include tuition, fees, books, and uniforms, and a monthly stipend of $30 to first-year students, $40 to second-year students, and $50 to third-year students. Successful candidates will be obligated to accept employment at full salary as staff nurses in one of the hospitals of the Department of Public Welfare on a basis of one year of employment for each year in school on the scholarship. For information write or call Nursing Service, Illinois Department of Public Welfare, 403 State Office Bldg., 400 S. Spring St., Springfield (Phone: Springfield 6611—Extension 464), or Nursing Service, Illinois Department of Public Welfare, 1500 State Office Bldg., 160 N. LaSalle St., Chicago 1 (Phone: FInancial 6-2000—Extension 624, 625).

Chicago

Edith Potter Named Professor of Pathology.—Dr. Edith L. Potter, who has been affiliated with the University of Chicago since 1934, has been elevated to professor of pathology in the department of obstetrics and gynecology in the school of medicine. Dr. Potter was president of the Chicago Pathological Association in 1946-1947. Her book, "Fundamentals of Human Reproduction," was published in 1947.

Dr. Arey Honored.—At the faculty-alumni reunion dinner of Northwestern University Medical School, May 12, a portrait of Leslie B. Arey, Ph.D., was unveiled and presented as a tribute from his colleagues and former students. Dr. Arey, who has been a faculty member at Northwestern for 41 years, is author of a textbook on embryology, "Developmental Anatomy." He retired at the close of the current school year as chairman of the department of anatomy but will continue in teaching and research capacities. Dr. Arey has served as president of the American Association of Anatomists, vice-president of the Chicago Academy of Sciences, and secretary and treasurer of the American Society of Zoologists. He was chairman of the White House conference on child health and protection and has been associate editor of *Exerpta Medica* and *Journal of Morphology*.

LOUISIANA

Professors Appointed.—The Tulane University of Louisiana School of Medicine, New Orleans, has named as full professors Dr. Clifford G. Grulee Jr., associate professor of pediatrics, presently serving as director of the division of graduate medicine and assistant dean of the medical school, and Arthur O. Kastler, Ph.D., associate professor of biochemistry.

Society News.—Newly elected officers of the New Orleans Graduate Medical Assembly include Dr. Eugene H. Countiss, president; Dr. Charles L. Brown, president-elect; Dr. Edwin L. Zander, first vice-president; Dr. C. Barrett Kennedy, second vice-president; Dr. Joseph N. Ane, third vice-president; Dr. Maurice E. St. Martin, secretary; and Dr. Ralph M. Hartwell, treasurer.

Personal.—Dr. Vann E. Spruiell, who is associated with the Tulane University of Louisiana School of Medicine, New Orleans, has been appointed psychiatrist for the Calcasieu Area Guidance Center in Lake Charles.——Dr. Ralph V. Platou, head, department of pediatrics, Tulane University of Louisiana School of Medicine, New Orleans, left in June on a four-month trip to eight European countries. He planned to participate in the International Congress of Pediatrics at Copenhagen in July. Dr. Platou was recently awarded a grant by the Rockefeller Foundation to evaluate methods of training in pediatrics abroad. In his capacity as secretary of the American Board of Pediatrics, he will be concerned with postgraduate programs and with content and methodology of examinations for certification in his specialty, particularly in Swedish and English centers.

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education, and public health. Programs should be received at least three weeks before the date of meeting.

MASSACHUSETTS

Dr. Aub Retires.—Dr. Joseph C. Aub, professor of research medicine and chairman, department of medicine, Harvard Medical School, and director of the school's laboratories in the Collis P. Huntington Memorial Hospital, Boston, retires this summer and will become professor of research medicine, emeritus. Dr. Aub is a special consultant for the National Cancer Institute and a medical consultant to Palmer Memorial Hospital, Beth Israel Hospital, the Massachusetts Eye and Ear Infirmary, Boston, and the South County Hospital, Wakefield, R. I.

NEBRASKA

Five Department Chairmen Appointed.—The University of Nebraska College of Medicine, Omaha, announces the appointment of five new department chairmen. Dr. Gordon E. Gibbs was promoted to professor and chairman of the department of pediatrics. Dr. Herman M. Jahr, retiring chairman, will retain his duties as professor of pediatrics. Dr. Robert L. Grissom, professor of internal medicine, was named chairman of the department. Dr. Willson B. Moody, retiring chairman, will retain his duties as professor. Dr. Merle M. Musselman, professor of surgery, was selected as chairman of that department. Dr. Herbert H. Davis, retiring chairman, will continue as professor of surgery. Dr. Roy G. Holly, professor of obstetrics and gynecology, was designated chairman of that department. Dr. Leon S. McGoogan, retiring chairman, will remain as professor of obstetrics and gynecology. Dr. Frank J. Klabenes, associate professor of otorhinolaryngology, has been appointed chairman of the department of otorhinolaryngology. Dr. J. Calvin Davis Jr., retiring chairman, was recently appointed senior consultant.

NEW YORK

Bell Professorship Provided by Gift.—Hermann Rahn, Ph.D., associate professor and vice-chairman of the department of physiology at the University of Rochester School of Medicine and Dentistry, has been named Lawrence D. Bell Professor of Cardiovascular Research in Physiology and head of the department of physiology in the University of Buffalo School of Medicine. The Bell professorship was made possible by a gift of $75,000 from the Bell Foundation to the medical school through the cooperation of the Western New York State Heart Association early in 1955. The gift, named for Lawrence D. Bell, president of the Bell Foundation and the Bell Aircraft Corporation, provides $10,000 a year for five years toward Dr. Rahn's salary and $25,000 to equip his research laboratory.

Children's Hospital Expanded.—The $3,800,000 wing of the Children's Hospital in Buffalo has been opened. The nine-story structure constitutes the largest part of the over-all $4,500,000 building program started Aug. 21, 1953. Glass partitions have been used wherever possible in order to provide the maximum amount of light, to expedite nursing care, and to enable children to see others so that they feel less alone. Oxygen and suction are piped to most of the pediatric beds. The ninth floor, reserved for contagious cases, has sliding partitions to permit opening up a single unit into a larger space to be shared by patients with the same disease, its own x-ray unit, and a combination treatment-operating room. Half of the sixth floor is occupied by the Sister Elizabeth Kenny Foundation. The fifth floor is entirely semiprivate, and the fourth floor has 24 private rooms. Surgical and orthopedic patients receive care on the third floor, where there is a large playroom. The second floor is entirely surgical. The main floor has the air-conditioned Kinch Auditorium, the Emily Foster Memorial Medical Reference Library, and an occupational therapy department designed to resemble a small village.

Personal.—Governor Averell Harriman has appointed Dr. Donald G. Anderson, Rochester, a member of the board of visitors of the Roswell Park Memorial Institute, to fill the vacancy caused by the death of Dr. Eldridge H. Campbell Jr.—Dr. Alva G. McCord, Albany, has been given the second annual Judson College Alumni award. Dr. McCord, the widow of Dr. Clinton P. McCord, has served on the faculty of Judson College in Marion, Ala., Wellesley (Mass.) College, and several other colleges.—Dr. Louis E. Gaeta, Jackson Heights, was recently elected state medical officer of the Department of New York, Catholic War Veterans. Dr. Gaeta, who is on the staff of Flushing Hospital and Dispensary, served with the U. S. Army five years, three in the European Theater of Operations.—Dr. W. Brandon Macomber, associate professor and head, subdepartment of plastic surgery, and Dr. Mark K. Wang, assistant clinical professor of plastic surgery, Albany Medical College of Union University, recently presented "Congenital Deformities of the Lips" before the American Association of Plastic Surgeons in Toronto, Canada.—Dr. Joseph K. Hill, assistant to the dean of the State University of New York College of Medicine at Syracuse, has been named executive secretary of the university's Downstate Medical Center in Brooklyn. Dr. Hill will also hold the title of associate professor of medical administration.

New York City

Bequest to Hospital.—Lenox Hill Hospital recently received $650,000 from the estate of Dr. Max Einhorn, who died Sept. 25, 1953. Under the terms of the will, income from the gift is to be used for research in the field of gastroenterology, especially with a view to refining the methods of diagnosis and treatment developed by Dr. Einhorn. Income from the gift will be used also to maintain the Max and Flora Einhorn Building donated by Dr. Einhorn in 1937, which includes an auditorium and wards for patients with gastroenterological ailments.

Clinic for Adolescents.—The Roosevelt Hospital opened on April 11 an adolescent clinic to augment its psychiatric outpatient services, which have been providing care for children and adults since 1949. Dr. Robert W. Laidlaw is chief of the psychiatric service. The adolescent clinic hours, 4-6 p.m. each Wednesday, were chosen to prevent interference with the adolescents' school program. Referrals to the clinic will be made principally by other clinics, hospitals, and agencies in the community and will be restricted to residents of the Roosevelt Hospital district.

Burmese Team to Train at Rehabilitation Institute.—Through a grant of $30,000 provided by the Rockefeller Foundation, a team of Burmese physicians, nurses, therapists, and psychiatrists will receive a year's training at the Institute of Physical Medicine and Rehabilitation, New York University–Bellevue Medical Center, under the direction of Dr. Howard A. Rusk and his staff. The project is the result of inspection of the institute last year by Burmese Prime Minister U Nu. At the conclusion of their studies in June, 1957, the team will return to Burma and establish a rehabilitation center.

NORTH CAROLINA

Distinguished Service Awards.—At a meeting of the alumni of the University of North Carolina School of Medicine, Chapel Hill, distinguished service awards were bestowed on the following physicians, none of whom are alumni of the university:

John Stuart Gaul, Charlotte, ". . . past president of the North Carolina Orthopaedic Association . . . and a pioneer in establishing crippled children clinics in North Carolina. As secretary and member of the advisory committee of the State Medical Society appointed to work with the Medical Care Commission, he gave of his time and talents toward the realization of the Medical Care program . . ."

Hamilton Witherspoon McKay, Charlotte, "Trustee of Davidson College and of Union Theological Seminary. As chairman of the State Medical Society's committee to work with the North Carolina Medical Care Commission during the crucial and formative years his wise leadership of a courageous and farsighted group of men played a decisive role in the implementation of the State's Good Health Program . . ."

James Bell Bullitt, Chapel Hill ". . . Professor of Pathology at the University of North Carolina from 1913 to 1948, and since then emeritus. Scholar, scientist and friend, dear to the hearts of two generations of alumni, many of whose careers he has guided and all of whose lives he has enriched."

George Grady Dixon, Ayden, "A devoted 'country doctor' and community leader. Tireless worker for better health for the people of North Carolina as a member of the North Carolina State Board of Health since 1931, and, since 1949, its president."

J. Street Brewer, Roseboro, "Dedicated physician, past president of the Medical Society of the State of North Carolina, past member of North Carolina Board of Medical Examiners, member of North Carolina Medical Care Commission since 1947. A loyal friend of this institution who had the wisdom to seek superb medical training and the humility to give his service and himself for the physical, emotional and intellectual betterment of his fellow North Carolinians."

OHIO

Dr. Page Honored.—Dr. Irvine H. Page, director of research at the Cleveland Clinic since 1945, was awarded an honorary doctor of laws degree by John Carroll University, Cleveland, at the university's commencement exercises, June 11. Dr. Page, who is president of the American Heart Association, has served as director of chemical research at the Kaiser Wilhelm Institute, Munich, Germany, associate member of the Rockefeller Institute for Medical Research, and director of the Lilly Laboratory for Clinical Research at the Indianapolis City Hospital.

Columbus Now Has Full-time Chief Physician.—Dr. Frank H. Herrington has been appointed as the first full-time chief physician for the city of Columbus. He will supervise the recently established health program for municipal employees. Dr. Herrington served in the Navy as medical officer to the U. S. Embassy at Chungking from 1943 to 1945 and remained in China with the medical division of the United Nations Relief and Rehabilitation Administration until 1947. Following graduate study in London, he served as industrial medical officer for the Asiatic Petroleum Company in Iraq and Syria.

OKLAHOMA

Annual Clinic Symposium.—The McAlester Clinic and McAlester Clinic Foundation will present their second annual symposium Aug. 4-5 under the joint sponsorship of the clinic and the department of postgraduate medicine, University of Oklahoma School of Medicine, Oklahoma City. Eight hours of category 1 credit will be allowed by the American Academy of General Practice. The Saturday afternoon session will include presentations on pediatric aspects of trauma, chest injuries, eye injury and infection, head injuries, burns, and fractures of the elbow in children. It will close with a panel discussion on cardiovascular disease. A social hour at the McAlester Country Club will precede the dinner at which Dr. Malcom E. Phelps, El Reno, will be guest speaker. Sunday at 8 a.m. there will be a golf tournament at the McAlester Country Club and fishing at McAlester Lakes. A clinical session is scheduled for 9:45 a.m., as is a cinema clinic. At 10 a.m. a film on heart disease will be presented, at 10:45 a.m. a film on diagnosis of acute abdominal problems, and at 11:45 a.m. a film on bronchoscopy and chest anatomy management. The afternoon session will be devoted to papers on malignancy and will close with a panel on massive upper gastrointestinal tract hemorrhage.

TENNESSEE

Center for Children with Cerebral Palsy.—The University of Tennessee College of Medicine, Memphis, announces that construction will begin soon on the $159,500 Les Passees Diagnostic and Treatment Center for Cerebral Palsied Children at Court and Dunlap. A portion of the construction funds was provided by the Women's Philanthropic Organization; the remainder will come from the U. S. Public Health Service's Hill-Burton Act Fund. The federal grant for the one-story center was made to the college of medicine, which will give Les Passees a 99-year lease to operate.

Personal.—Dr. Robert A. Davison, head, department of general practice, University of Tennessee College of Medicine, Memphis, was invited to present a paper at a special session of the British Medical Association in Brighton, England, July 9-13, on what the university is doing to train general practitioners.——Dr. F. Thomas Mitchell, chief, division of pediatrics, University of Tennessee College of Medicine, Memphis, has been named a distinguished alumni member of the university's chapter of Alpha Omega Alpha. Dr. Mitchell has practiced pediatrics in Memphis since 1917 and since 1947 has been professor and chief of the department of pediatrics.

WASHINGTON

Society News.—The Inland Empire division of the lay society of the Washington State Diabetes Association was recently organized to disseminate information concerning new developments in diabetes, to assist in educating diabetics and their families in treatment and care, and to obtain summer camp facilities for diabetic children. Drs. O. Charles Olson, Spokane, Robert Berghan, Spokane, and Robert L. Picken Jr., Opportunity, have been appointed medical advisors for the group.

Medical School Receives Legacy.—A legacy valued at nearly $60,000 has been accepted for research in the University of Washington School of Medicine, Seattle. Mr. Herman C. Stuht, retired Seattle real estate man, left the estate to the Seattle First National Bank with the provision that it be given to "a scientific or medical organization which is studying and seeking the cause of and remedy for human mental sickness, particularly incident to the aged." The bank, as trustee, selected the university to receive the bequest.

WISCONSIN

University News.—Walter E. Sullivan, Ph.D., head of the anatomy department, University of Wisconsin, Madison, for 23 years, has retired after 36 years of teaching.

Research in Muscular Dystrophy.—The University of Wisconsin hospitals are undertaking a program of clinical research to diagnose and evaluate cases of muscular dystrophy. Dr. Henry A. Peters, assistant professor of neurology and psychiatry, University of Wisconsin Medical School, Madison, is director of the program, which is supported by the Muscular Dystrophy Associations of America. Dr. Peter L. Eichman, assistant professor of neurology and internal medicine at the medical school, is assistant director. Consultants are Dr. Harry D. Bouman, professor of physical medicine; Dr. Clinton N. Woolsey, professor of neurophysiology; and Dr. Hans H. Reese, chairman of the department of neuropsychiatry, who is also a member of the medical advisory board of the association.

Diabetes Summer Camps.—For the second year, the Milwaukee Lay Society and the clinical society of the Wisconsin Diabetes Association are sponsoring summer camps for diabetic children. The Milwaukee Boys' Club camp (July 23-Aug. 4) is at Lake Keesus. The girls' camp will be at Camp Sidney Cohen on Lake Nemahbin, Aug. 16-30. The camps are available to all diabetic youngsters aged 8 to 16 in the state. A registered nurse trained in the care of the diabetic and a dietitian to supervise meals attend the camping sessions with the children. A physician member of the Wisconsin Diabetes Association makes a daily visit to check on insulin requirements. Insulin is furnished free at the camp. Partial financial assistance is provided; campers are required to pay only as much as their parents are able to afford of the $30 fee for boys and the $42.50 for girls. If necessary, transportation to and from the camp is furnished. Information on the camps may be obtained from Mrs. Donald Turek at COncord 4-8890.

WYOMING

Camp for Crippled Children.—The Wyoming Society for Crippled Children and Adults will hold its first Easter Seal Summer Camp for Crippled Children at the Fremont County Youth Camp, near Lander, Aug. 12-25. The committee for the selection of children will be composed of representatives from the state departments of public health, education, and welfare, as well as members of the Wyoming society. Referrals to the committee may be made by schools, parents, and county agencies. Children must be able to care for their own day-by-day self-help activities and have sufficient muscular strength to participate in normal activities, sufficient skill in donning or removing own prosthesis or appliances, and awareness of physical abilities and limitations and of social responsibilities. Children with heart conditions, visual or hearing defects, and emotional problems cannot qualify. The camp fee will be about $45. Inquiries may be directed to: Easter Seal Summer Camp, Box 1088, Thermopolis.

ALASKA

Oto-Ophthalmologic Clinic.—The Alaska Native Health Service Hospital in Anchorage has opened the first clinic for eye, ear, nose, and throat ailments among the Eskimos. Dr. Milo H. Fritz, Anchorage, immediate past-president of the Alaska Territorial Medical Association, will direct the new department, which will serve both inpatients and outpatients.

GENERAL

English-Language German Medical Journal.—The recently launched English-language *German Medical Monthly* contains original articles, in addition to translations of articles appearing in the weekly *Deutsche medizinsche Wochenschrift*. It is distributed in the United States by the Intercontinental Medical Book Corporation, 381 Fourth Ave., New York 16. Sample copies are available on request.

Booklet on Coronary Atherosclerosis.—The American Heart Association has issued a 16-page booklet for cardiac patients, entitled, "Heart Disease Caused by Coronary Atherosclerosis," by Dr. Paul Dudley White, Boston. Copies of this revised edition of an earlier pamphlet by Dr. White, first issued in 1950, may be obtained by heart patients, physicians, and others on request to local heart associations.

Grant for Smog Research.—A contribution of $125,000 has been made by the nation's motor vehicle manufacturers in support of the 1956 research program of the Air Pollution Foundation, 704 S. Spring St., Los Angeles 14. The grant, which represents a 25% increase over the automotive industry's 1955 contribution, brought to $280,000 the total financial support the foundation had received from the auto manufacturers during the past three years.

Goodwill Award.—The 1956 Goodwill Award, given annually by Goodwill Industries of America, Inc. for outstanding service to handicapped people, was presented to Mr. Donald V. Wilson, LL.B., secretary-general of the International Society for the Welfare of Cripples on June 23. Under his administration the International Society for the Welfare of the Crippled has grown to include 22 affiliated national organizations in as many countries. He has served as chairman of an international conference called by the United Nations to plan improved services for handicapped people and has arranged international conferences of his organization for this purpose.

Awards in Gerontology.—The Ciba Foundation for the Promotion of International Cooperation in Medical and Chemical Research (41 Portland Pl., London, W.1) announces that not less than five awards, of an average value of £300 ($843), will be made in 1957 for experimental research into basic problems of aging. The announcement of awards will be made in July, 1957, and preference will be given to younger workers. The work submitted should not have been published before May 31, 1956, though it may have been under consideration for publication at that date. Papers (not more than 7,000 words) must be received not later than Jan. 31, 1957, by G. E. W. Wolstenholme, Director and Secretary to the Executive Council of the foundation.

Lalor Faculty Research Awards.—Under its program of Faculty Summer Research Awards in the Biological Sciences, the Lalor Foundation announces 12 awards in general physiology, 5 in genetics, 4 in cytochemistry and microbiology, 3 in insect physiology, 2 each in comparative biochemistry, embryology, and endocrinology, and one in ecology and 10 awards in the botanical sciences (8 in plant physiology and 2 in mycology). The average award is about $1,100. Most of the appointments are at the assistant professor and instructor level. Most of the candidates for awards are holding their first academic appointment. Announcement will be made in October, 1956, regarding the next series of college and university faculty awards for research in the biological sciences to be offered for the summer of 1957.

Albert C. Snell Memorial Lectureship.—As a tribute to the late Dr. Albert C. Snell, a memorial fund has been established which has as its purpose the sponsoring of an annual lectureship in ophthalmology. Dr. Snell, who had served as president of the Monroe County (N. Y.) Medical Society, was the first ophthalmologist appointed to the Strong Memorial–Rochester Municipal Hospitals and the first lecturer in ophthalmology at the University of Rochester School of Medicine and Dentistry. Dr. Algernon B. Reese of the Institute of Ophthalmology, Columbia University, New York, delivered the first of the memorial lectures on "Pigmented Lesions of the Conjunctiva." Contributions to the memorial may be sent to the Albert C. Snell Memorial Fund, Inc., c/o Rochester Academy of Medicine, 1441 East Ave., Rochester 10, N. Y.

Berman–Hadassah Microchemical Equipment Fund.—Announcement is made of the establishment of the Dr. Shimon Berman–Hadassah Hospital Microchemical Equipment Fund, affiliated with the Phi Delta Epsilon Foundation of Chicago. The Foundation has obtained permission to ship taxfree equipment for micromethods, which include colorimeter, flame photometer, pH meter, microcentrifuge, and micropipettes, at a cost of about $1,500, to Dr. Berman, chief of pediatrics, Hadassah Hospital, Jerusalem, Israel, who for 30 years has served the sick infants and children of immigrants. His special problem relates to infants debilitated and dehydrated by persistent diarrhea. The foundation seeks contributions to aid in their care and rehabilitation. Tax-deductible contributions should be made to the S. Berman–Hadassah Hospital Fund and mailed to the Treasurer, Phi Delta Epsilon Foundation, 109 N. Wabash Ave., or to one of the committee members: Dr. Isadore Pilot, Chicago, chairman; Dr. Nathan S. Zeitlin, Chicago; Dr. Samuel J. Hoffman, Chicago; or Dr. Louis A. Eshman, Los Angeles.

Prevalence of Poliomyelitis.—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States and its territories and possessions in the weeks ended as indicated:

	June 30, 1956		
Area	Paralytic Type	Total Cases Reported	July 2, 1955, Total
New England States			
Maine	..	..	..
New Hampshire	..	..	..
Vermont	..	..	..
Massachusetts	..	..	1
Rhode Island	..	..	..
Connecticut	..	..	5
Middle Atlantic States			
New York	7	18	25
New Jersey	4	6	5
Pennsylvania	..	1	10
East North Central States			
Ohio	..	2	22
Indiana	..	2	3
Illinois	10	21	10
Michigan	2	10	9
Wisconsin	1	5	9
West North Central States			
Minnesota	1	2	2
Iowa	..	1	10
Missouri	4	8	4
North Dakota	..	1	3
South Dakota	..	1	..
Nebraska	No report	No report	3
Kansas	4	4	2
South Atlantic States			
Delaware	..	..	1
Maryland	2	2	3
District of Columbia	..	1	1
Virginia	4	6	8
West Virginia	..	..	3
North Carolina	1	2	8
South Carolina	..	2	6
Georgia	..	3	5
Florida	5	17	10
East South Central States			
Kentucky	..	..	3
Tennessee	..	2	3
Alabama	..	2	8
Mississippi	1	7	9
West South Central States			
Arkansas	1	2	5
Louisiana	16	20	17
Oklahoma	1	7	4
Texas	28	41	43
Mountain States			
Montana	3	3	2
Idaho	1	1	8
Wyoming	1	2	1
Colorado	3	5	6
New Mexico	..	1	10
Arizona	..	..	6
Utah	..	2	2
Nevada	..	..	6
Pacific States			
Washington	..	1	4
Oregon	..	..	3
California	32	50	25
Territories and Possessions			
Alaska	..	..	..
Hawaii	..	..	1
Puerto Rico	3	3	9
Total	135	259	343

Society News.—Newly elected officers of the **Society for Investigative Dermatology** include: Dr. Maximilian E. Obermayer, Los Angeles, president, and Dr. Rudolf L. Baer, New York, vice-president.——The **American Academy of Tuberculosis Physicians** recently elected Dr. Rupert C. L. Markoe, Detroit, president; Dr. Louis M. Barber, Murphys, Calif., first vice-president; Dr. Zoltan Galambos, Chicago, second vice-president; and Dr. Oscar S. Levin, Denver, secretary.——The **American Therapeutic Society** recently elected Dr. Gerald H. Pratt, New York, president; Dr. Austin E. Smith, Chicago, first vice-president; Dr. Dale P. Osborn, Cincinnati, second vice-president; Dr. Richard T. Smith, Philadelphia, third vice-president; Dr. Oscar B. Hunter Jr., Washington, D. C., secretary; and Dr. Joseph A. Davis, Chicago, treasurer.——The **American Gastroscopic Society** recently elected Dr. John Tilden Howard, Baltimore, president; Dr. Clifford J. Barborka, Chicago, vice-president; and Dr. C. Wilmer Wirts, Philadelphia, secretary-treasurer.——The **American College of Chest Physicians** recently named Dr. Burgess L. Gordon, Philadelphia, president-elect; Dr. Donald R. McKay, Buffalo, first vice-president; Dr. Seymour M. Farber, San Francisco, second vice-president; Dr. Charles K. Petter, Waukegan, Ill., treasurer (reelected); and Dr. Albert H. Andrews, Chicago, assistant treasurer (reelected). Dr. Herman J. Moersch, Rochester, Minn., took office as president.——At the 36th annual meeting of the **Planned Parenthood Federation of America** at the Waldorf-Astoria, New York, Drs. Jed W. Pearson of the George Washington University School of Medicine, Washington, D. C., and Abraham Stone, New York, director of the Margaret Sanger Research Bureau, participated in a panel, "Education for Marriage," which was moderated by Dr. Alan F. Guttmacher, director of obstetrics and gynecology at Mount Sinai Hospital, New York. The panel featured the introduction of a new federation guide, written by Dr. Stone, for its affiliates on development of marriage education programs.——The **International Society for the Welfare of Cripples** has sent to Dr. Wiktor Dega, professor of orthopedic surgery at Poznan (Poland) University, a new documentary motion picture "Still Going Places," filmed in New York City, showing practical ways of treating elderly invalids. Dr. Dega is known throughout Europe for his work in rehabilitating crippled victims of World War II. Produced at the Home for Aged and Infirm Hebrews in New York through a grant from Chas. Pfizer & Co., Inc., the film recently was awarded the Certificate of Merit in the medical and nursing competition at the Cleveland Film Festival, where the Pfizer film, "Dynamics of the Tubercle," won first award.——At a meeting preceding the annual session of the **American College of Physicians**, representatives of state societies of internal medicine completed arrangements for the formation of the **American Society of Internal Medicine**. Specialists in the practice of internal medicine from 20 states were present at the organizational meeting. Officers and committee members who will serve as an interim committee include Drs. Lewis T. Bullock, Los Angeles, chairman; Claude P. Callaway, San Francisco, secretary-treasurer; and Clark C. Goss, Seattle, chairman of the subcommittee on bylaws. National headquarters for the current year will be at San Francisco, present headquarters of the **California Society of Internal Medicine**.

Postgraduate Courses in Anesthesiology.—The American Society of Anesthesiologists (188 W. Randolph St., Chicago), has available a 32-page booklet describing opportunities in each state for postgraduate education in anesthesiology for 1956. The types of postgraduate training include residencies, special training programs, individually arranged clinical courses, refresher courses, and other instructional activity. Among the many items listed are a didactic refresher course at the University of Arkansas School of Medicine, Little Rock (October and November), designed for physicians with little or no training in anesthesiology; clinical and didactic courses at St. Francis Hospital, Hartford, Conn. (two to three months, available September), designed for physicians with little or no training in anesthesiology; the triyearly meeting of the Kentucky Society of Anesthesiologists in Louisville (Sept. 15), open to members and invited guests of the society; a graduate course of one year's duration, beginning Sept. 8, at the New York University Post-Graduate Medical School (550 First Ave., New York 16); and a three months' didactic course consisting of weekly seminars and demonstrations (Sept. 1) at the Tacoma General Hospital and Pierce County Hospital, Tacoma, Wash., designed for physicians with little or no training in anesthesiology. Many of the courses offered in the booklet may be arranged at the convenience of the applicant.

FOREIGN

Congress of Chest Physicians.—The fourth International Congress on Diseases of the Chest of the American College of Chest Physicians in Cologne, Aug. 19-23 (THE JOURNAL, April 7, 1956, page 1246), will discuss the following subjects: Coronary Diseases of the Chest; Industrial Diseases of the Chest; Virulence and Resistance under Chemotherapy of Pulmonary Tuberculosis; Pulmonary Function; Cardiac Function; and Tumors of the Mediastinum. Participants from the United States will include Drs. Jeremiah Stamler, Chicago, Claude S. Beck, Cleveland, Houck E. Bolton, Philadelphia, Andrew L. Banyai, Wauwatosa, Wis., Jay A. Myers, Minneapolis, Maurice S. Mazel, Chicago, Benjamin L. Gordon, Ventnor, N. J., and Richard H. Overholt, Boston. For information write Sekretariat des 4. Internationalen Kongresses "American College of Chest Physicians," Köln-Deutz, Messeplatz, Germany.

EXAMINATIONS AND LICENSURE

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: Various Centers. September 4-5 (Part I). Candidates may file applications at any time but they must be received at least six weeks before the date of the examination for which application is made. New candidates should apply by formal registration, registered candidates may notify the board indicating desired location, date and candidate number. Ex. Sec., Dr. John P. Hubbard, 133 South 36th St., Philadelphia 4.

BOARDS OF MEDICAL EXAMINERS

ILLINOIS: *Examination and Reciprocity.* Chicago, Oct. 9-11. Supt. of Regis., Mr. Frederic B. Selcke, Capitol Building, Springfield.

LOUISIANA: *Homeopathic.* Subject to call. Sec., Dr. F. H. Hardenstein, 903 Pere Marquette Bldg., New Orleans 12.

MONTANA: *Examination and Reciprocity.* Helena, Oct. 2-3. Sec., Dr. S. A. Cooney, 7 West 6th Ave., Helena.

NEW HAMPSHIRE: *Examination and Reciprocity.* Concord, Sept. 12-13. Sec., Dr. John S. Wheeler, 107 State House, Concord.

OHIO: *Endorsement.* Columbus, Aug. 28 and Oct. 2. *Examination.* Columbus, Dec. 18-20. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus 15.

TEXAS:* *Examination and Reciprocity.* Fort Worth, Dec. 6-8. Applications for examination must be on file at least ten days prior to the meeting date and applications for reciprocity must be complete and on file at least thirty days prior to the meeting date. Sec., Dr. M. H. Crabb, 1714 Medical Arts Bldg., Fort Worth 2.

WEST VIRGINIA: *Reciprocity.* Charleston July 20. Sec., Dr. N. H. Dyer, State Office Bldg. No. 3, Charleston.

ALASKA:* On application in Anchorage, Fairbanks, Juneau and other towns. Sec., Dr. W. M. Whitehead, 172 South Franklin St., Juneau.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

DISTRICT OF COLUMBIA: *Examination.* Washington, Oct. 22-23. Deputy Director, Mr. Paul Foley, 1740 Massachusetts Ave., N. W., Washington.

OKLAHOMA: *Examination and Reciprocity.* Oklahoma City, Sept. 28-29. Sec. Dr. E. F. Lester, 813 Braniff Bldg., Oklahoma City.

OREGON: *Examination.* Portland, Sept. 8 and Dec. 1. Dr. Earl M. Pallett, Sec., State Board of Higher Education, Eugene.

RHODE ISLAND: *Examination.* Providence, Aug. 29. Administrator of Professional Regulation. Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

TEXAS: *Examination.* Austin, October. Sec., Bro. Raphael Wilson, 407 Perry-Brooks Bldg., Austin.

WISCONSIN: *Examination.* Madison, Sept. 21. Final date for filing application is Sept. 13. Sec., Dr. W. H. Barber, 621 Ransom St., Ripon.

ALASKA: *Examination and Reciprocity.* Anchorage and Juneau, first week of February, April, June, August and November. Sec., Dr. C. Earl Albrecht, Box 1931, Juneau.

*Basic Science Certificate required.

GOVERNMENT SERVICES

SECRETARY OF DEFENSE

Interagency Health Advisory Board.—The Office of Defense Mobilization has announced the establishment, effective May 31, of the Interagency Health Advisory Board, the primary function of which is to advise the director of Defense Mobilization "on interagency problems in planning for defense mobilization purposes for the utilization and control of health resources, including professional and auxiliary health manpower, health supplies and equipment and health facilities." The board, the head of which will be Dr. Howard A. Rusk, chairman, Health Resources Advisory Committee, Office of Defense Mobilization, comprises representatives from the Departments of Defense, Army, Navy, Air Force, and Health, Education, and Welfare; the Federal Civil Defense Administration; and the Veterans Administration.

AIR FORCE

General Benson Appointed to School of Aviation Medicine.—Brig. Gen. Otis O. Benson Jr. will again become commandant of the School of Aviation Medicine at Randolph Air Force Base, Texas, on Sept. 1, succeeding the late Brig. Gen. Edward J. Kendricks. For the last three years General Benson has been on duty at Air Force headquarters in Washington, D. C. In a press release, the School of Aviation Medicine said one reason for the reassignment of General Benson may be the impending construction of a new headquarters for the school, as he was chairman of the planning board when the idea first took shape seven years ago. It was announced recently by Representative Kilday of Texas, a member of the House Armed Services Committee, that all government agencies concerned with the project have approved it. The proposed 9-million-dollar institute would provide a vastly improved plant in which to carry on teaching and research activities, although it will have no clinical facility for the observation and treatment of ailing flyers. General Benson was surgeon of the 15th Air Force in Africa and Italy and surgeon of the Army Air Forces in the Mediterranean area during World War II and was head of the research division in the Air Surgeon's Office before taking command of the School of Aviation Medicine in 1949. For his contribution to aeromedical research, he received the John Jeffries award of the Institute of the Aeronautical Sciences in 1951 and the Lyster award of the Aero Medical Association in 1955. He is a member of the National Board of Medical Examiners and a past-president of the Aero Medical Association.

Graduating Class Addressed by Dr. Tillisch.—At the commencement exercises at Randolph Air Force Base, Texas, June 21, Dr. Jan H. Tillisch of Rochester, Minn., addressed the graduates, comprising 10 Air Force surgeons who took the advanced course at the school, 36 Air Force medical officers, 11 Army medical officers, 18 surgeons of foreign air forces, and a civilian physician from an aircraft plant. Dr. Tillisch is president of the Aero Medical Association and medical director of Northwest Airlines. Col. Herbert M. West Jr., chief of staff of the Air University, of which the School of Aviation Medicine is the medical branch, awarded the diplomas.

Visit to the Far East.—In June, Col. Patrick H. Hoey, M.C., U. S. A. F., chief, medical liaison and selection division, Office of the Surgeon General, visited most of the bases in Japan, Okinawa, the Philippine Islands, and Hawaii, discussing with medical personnel provisions of the Medical Career Incentive Act concerning medical and dental careers in the Air Force.

Internship Program in Air Force Hospital.—The A. M. A. Internship Review Committee recently recommended to the Council on Medical Education that the internship program of the U. S. Air Force hospital at Lackland Air Force Base, San Antonio, Texas, be approved. The Council concurred in this recommendation, and the hospital was approved for the training of 24 interns on a rotating service. Present plans call for the initiation of this program July 1, 1957, by which time the new hospital at Lackland will be completed and in use.

VETERANS ADMINISTRATION

Treatment of Mental Patients.—Discharges of former chronically ill mental patients, now treated with tranquilizing drugs, increased 36% at the Northampton (Mass.) Veterans Administration Hospital, according to a recently released survey. In the last six months of 1954, when few patients were treated with tranquilizing drugs (chlorpromazine and reserpine), the hospital reported 86 patients discharged compared to 118 in the same period in 1955, when extensive drug treatment was given.

Among patients hospitalized five years or longer, it was found that the percentage of improved cases increased even more when these patients were treated by drugs as compared to other types of treatment. Thirty-three were discharged among this group as compared to 19 the year before without benefit of drugs, or a 77% increase. In those hospitalized less than five years, 85 were discharged against 66, or a 69% increase.

Of 533 patients receiving different types of psychiatric treatment, 202 were treated with tranquilizing drugs, and of this latter group 76% showed improvement. The percentage of improvement in those treated with the tranquilizing drugs was considerably higher than among those given other types of psychiatric treatment. Many of those successfully treated with drugs had failed to improve under other types of treatment. The other forms of psychiatric treatment studied were found effective to the following degrees: insulin, 59%; electric shock, 54%; and lobotomy, 46%. The group surveyed ranged in age from 18 to 69 years and had been hospitalized for periods of from one month to 30 years.

Training in Anesthesiology.—The Veterans Administration has developed a plan for career residency training in anesthesiology for full-time physicians in order to overcome the shortage of certified anesthesiologists in the VA's Department of Medicine and Surgery. The program will begin July 1, 1956, in several VA hospitals. The VA said the new plan is not a substitute for the regular residency program, nor will it interfere with the program now in effect. The plan has an obligated service requirement of two years. Prior service in the VA is not a requirement as long as the obligated service contract is signed. The program has the following essential features. 1. Formal residency training will be provided at VA hospitals approved for residency training by the American Medical Association and the American Board of Anesthesiology. 2. Appointment will be restricted to physicians in intermediate and lower grades. 3. Physicians to be eligible for such training must be approved by the manager and the dean's committee of the training hospital concerned.

Psychiatrist Needed.—The Veterans Administration Medical Teaching Group Hospital, Memphis 15, Tenn., is in need of a psychiatrist. This 1,215-bed general medical and surgical hospital has a residency program with 55 residents in all medical specialties. Every full-time physician has teaching assignments. The salary begins at $8,990 to $11,610 per annum, depending on the qualifications of the applicant, with 25% for board certification in addition to salary. For further details contact Dr. C. C. Woods, Manager, VA Medical Teaching Group Hospital.

Personal.—Dr. George M. Lyon, manager of the Veterans Administration hospital at Huntington, W. Va., has received an honorary doctor of science degree from Denison University at Granville, Ohio. His World War II career in atomic medicine and his postwar activities as chief of the radioisotope section in the VA were factors in his choice of degree.

Hospital News.—Dr. Juan Negrin Jr., attending neurosurgeon, Kings Park Hospital, Kings Park, N. Y., addressed the hospital staff of the Veterans Administration hospital at Northport, L. I., N. Y., June 22, 1956, on "Recent Advances in Neurological Surgery."

DEATHS

Blatherwick, Wilfred Edwin ✙ Newtown, N. D.; Rush Medical College, Chicago, 1901; member of the North Dakota Fifty-Year Club; died April 7, aged 85, of acute myocardial infarction.

Bogaev, Harry Abraham ✙ Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1919; assistant professor of clinical urology at Jefferson Medical College; for many years on the staff of the Jefferson Medical College Hospital, where he died April 20, aged 63, of coronary thrombosis.

Bolosky, Samuel Alford ✙ Philadelphia; Tufts College Medical School, Boston, 1924; served during World War II; died in Haddonfield, N. J., April 14, aged 54, of coronary occlusion.

Brown, George Washington, Los Angeles; Central Medical College of St. Joseph, Mo., 1898; formerly on the faculty of College of Medical Evangelists, Loma Linda and Los Angeles; an associate member of the American Medical Association; died March 29, aged 72, of pneumonia, arteriosclerosis, and diabetes mellitus.

Candlin, George Henry, Blanco, Texas; Eclectic Medical Institute, Cincinnati, 1906; formerly practiced in Laredo; past-secretary and president of the Webb-Zapata-Jim Hogg Counties Medical Society; died Jan. 24, aged 75, of cerebral hemorrhage and arteriosclerosis.

Capps, Murl T., Emporia, Kan.; Rush Medical College, Chicago, 1916; died in Clearwater, Fla., March 18, aged 64, of coronary thrombosis.

Casto, James Frederick ✙ New Braunfels, Texas; University of Louisville (Ky.) School of Medicine, 1926; in 1929 joined the staff of the Atchison, Topeka and Santa Fe Railway Hospital, Topeka, Kan., where in 1938 he became surgeon in charge, a position he held until 1947; served as charter president of the Comal County Medical Society; veteran of World War I; died in the Baptist Memorial Hospital, San Antonio, April 19, aged 56, of nephritis and heart disease.

Conway, James Vincent ✙ Elizabeth, N.J.; George Washington University School of Medicine, Washington, D.C., 1934; served during World War II; on the staffs of the Newark (N. J.) Eye and Ear Infirmary and the Elizabeth General Hospital and Dispensary; died April 16, aged 49, of carcinoma of the pancreas.

Cooper, Edwin S. ✙ New Castle, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1896; died in St. Petersburg, Fla., April 18, aged 84, of acute myocardial infarction.

Copeland, Floyd Ray ✙ Dallas, Texas; Baylor University College of Medicine, Dallas, 1924; veteran of World War I; on the medical staff of the Methodist Hospital; died April 12, aged 62.

Crowder, John W. ✙ Belle Ellen, Ala.; University of the South Medical Department, Sewanee, Tenn., 1904; died March 22, aged 77.

Day, Joseph Edward ✙ Salt Lake City; College of Physicians and Surgeons, Baltimore, 1913; veteran of World War I; on the staffs of Dr. W. H. Groves Latter-Day Saints Hospital, where he died April 10, aged 75, of cerebral hemorrhage.

Dean, Leslie Errol ✙ Maryville, Mo.; Kentucky School of Medicine, Louisville, 1898; served on the staff of St. Francis Hospital, where he died March 20, aged 80, of lymphoblastoma.

Dean, Ray Herbert ✙ Washington, Iowa; State University of Iowa College of Medicine, Iowa City, 1902; died in the Washington County Hospital, April 12, aged 79, of heart disease.

Dechow, Philip Herman ✙ Kinderhook, Ill.; Keokuk (Iowa) Medical College, College of Physicians and Surgeons, 1906; died in Abingdon, April 2, aged 78.

De Young, Thies ✙ Sparta, Mich.; Loyola University School of Medicine, Chicago, 1929; veteran of World War I; village health officer; on the staff of St. Mary's Hospital in Grand Rapids; died April 10, aged 62, of coronary thrombosis.

✙ Indicates Member of the American Medical Association.

Di Loreto, Valentino B. ✙ Steubenville, Ohio; Regia Università di Napoli Facoltà di Medicina e Chirurgia, Italy, 1905; died in the New England Baptist Hospital in Boston March 31, aged 76, of carcinoma of the ampulla of Vater.

Dubose, Roger Harold, Roanoke, Va.; North Carolina Medical College, Charlotte, 1918; member of the Medical Society of Virginia; veteran of World War I; died April 2, aged 64.

Durrant, James Arthur ✙ Snohomish, Wash.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1900; formerly state representative; veteran of World War I; served on the staffs of the Providence and General hospitals in Everett; died April 4, aged 80, of paralysis agitans.

Estle, Claude Beckett, New Albany, Ohio; Starling-Ohio Medical College, Columbus, 1912; member of the Ohio State Medical Association; died in the Grant Hospital, Columbus, April 4, aged 71.

Fitz Simmons, Lewis, Pulteney, N. Y.; Long Island College Hospital, Brooklyn, 1890; for many years health officer; an associate member of the American Medical Association; died April 20, aged 99.

Folckemer, Harry Rox ✙ Quincy, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1905; for many years resident physician at the Illinois Soldiers and Sailors Home; died in St. Mary's Hospital May 3, aged 75, of arteriosclerotic heart disease.

Foster, Arthur Neville, Boston; McGill University Faculty of Medicine, Montreal, Canada, 1912; member of the Massachusetts Medical Society; died in the New England Deaconess Hospital May 6, aged 72, of progressive muscular atrophy and carcinoma of the prostate.

Fowler, Samuel Robertson, Fayetteville, N. Y.; Columbia University College of Physicians and Surgeons, New York City, 1902; veteran of World War I; taught at Syracuse (N. Y.) University College of Medicine; served on the staff of the Memorial Hospital in Syracuse; died in the Veterans Administration Hospital in Syracuse April 23, aged 80, of acute pulmonary edema and arteriosclerotic heart disease.

Fox, Richard H. ✙ Bicknell, Ind.; Kentucky School of Medicine, Louisville, 1898; served as county health officer; died in the Good Samaritan Hospital, Vincennes, April 3, aged 87, of carcinoma of the bladder.

Frasier, Lester Warren ✙ Philadelphia; Medico-Chirurgical College of Philadelphia, 1914; veteran of World War I; died in the Hospital of the University of Pennsylvania April 29, aged 65, of pulmonary edema and embolism.

Fry, Thomas Charles ✙ Brooklyn, N. Y.; Columbia University College of Physicians and Surgeons, New York City, 1929; fellow of the Brooklyn Academy of Pediatrics; on the staffs of St. Mary's Hospital, Kings County Hospital, and the Carson C. Peck Memorial Hospital, where he died May 18, aged 54, of coronary disease.

Howard, Lewis Hoagland, Tucson, Ariz.; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1916; an associate member of the American Medical Association; served during World War I; city and county health officer; died in St. Mary's Hospital and Sanatorium April 6, aged 62, of cerebral hemorrhage and hypertension.

Howell, James Ernest, Mount Vernon, N. Y.; Tulane University of Louisiana School of Medicine, New Orleans, 1921; died March 23, aged 63.

Johnston, Lloyd B. ✙ Cincinnati; Johns Hopkins University School of Medicine, Baltimore, 1922; fellow of the American College of Surgeons; formerly on the faculty of the University of Cincinnati College of Medicine; served on the staffs of the Christ and Children's hospitals; member of the staff of the Good Samaritan Hospital, where he died April 5, aged 62.

Kampen, Harry Louis ✠ Monmouth, Ill.; Eclectic Medical Institute, Cincinnati, 1892; past-president of the Warren County Medical Society; veteran of World War I; died April 16, aged 90.

Kemper, P. Allen ✠ Germantown, Ohio; Eclectic Medical Institute, Cincinnati, 1903; on the staff of the Middletown (Ohio) Hospital; died April 12, aged 79.

Klaman, Clarence Alvord, Jr. ✠ Lehighton, Pa.; Temple University School of Medicine, Philadelphia, 1952; interned at the Allentown (Pa.) Hospital; certified by the National Board of Medical Examiners; died April 11, aged 32, in an automobile accident.

Klock, Glenn George, Easton, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1910; an associate member of the American Medical Association; on the staff of the Easton Hospital; died April 23, aged 72, of a heart attack.

Loomis, John Lawrence ✠ Santa Ana, Calif.; University of Pennsylvania School of Medicine, Philadelphia, 1922, served during World War I; died May 1, aged 59, of acute coronary occlusion and arteriosclerosis.

Luke, Ray Henry ✠ Erie, Pa.; University of Buffalo School of Medicine, 1917; fellow of the American College of Surgeons; on the staff of St. Vincent's Hospital; died May 1, aged 61.

Matthis, Paul Givens, Chicago; Northwestern University Medical School, Chicago, 1926; on the staff of the Provident Hospital; veteran of World War I; died May 5, aged 60, of coronary heart disease.

McAlister, Thomas Grady, Jr. ✠ Johnstown, Pa.; Northwestern University Medical School, Chicago, 1950; interned at St. Luke's Hospital in Chicago; formerly a resident at the Conemaugh Valley Memorial Hospital, where he was on the reserve staff; on the courtesy staffs of the Mercy and Lee hospitals; was instantly killed near Petersburg, W. Va., April 22, aged 41, in an automobile accident.

Montilli, Pasquale Frank, New York City; Medical College of Virginia, Richmond, 1926; served during World War II; died April 13, aged 55, of coronary occlusion.

Newcomer, Nathan Bennett, Palo Alto, Calif.; Denver and Gross College of Medicine, Denver, 1906; specialist certified by the American Board of Radiology; formerly practiced in Denver; member of the Colorado State Medical Society; an associate member of the American Medical Association; died May 5, aged 77.

Riddel, Simon W., Grantsville, W. Va.; Baltimore University School of Medicine, 1905; veteran of the Spanish American War; died May 9, aged 86.

Sagel, Jacob S. ✠ Gary, Ind.; University of Minnesota Medical School, Minneapolis, 1927; specialist certified by the American Board of Radiology; member of the Radiological Society of North America and the American College of Radiology; assistant instructor, 1931-1932, and instructor in radiology, 1932-1934, at his alma mater; veteran of World War I; roentgenologist at Methodist Hospital; died in Miami, Fla., April 5, aged 55, of myocardial infarction, coronary occlusion, and arteriosclerosis.

Sibila, Anthony Foley, Cleveland; Western Reserve University School of Medicine, Cleveland, 1954; interned at St. John's Hospital; died April 27, aged 28.

Silver, E. Drew ✠ Hightstown, N. J.; College of Physicians and Surgeons, Baltimore, 1913; served as mayor of Hightstown, member of the board of health, and school physician; veteran of World War I; died in the Princeton (N. J.) Hospital March 27, aged 66, of myocardial insufficiency.

Sinins, Eli ✠ New York City; New York Homeopathic Medical College and Flower Hospital in New York City, 1929; interned at the Jewish Memorial Hospital; died in the Beth David Hospital April 23, aged 52, of sarcoma of the right hand with generalized metastases.

Sloan, Guy Arthur ✠ Bloomington, Ill.; University of Illinois College of Medicine, Chicago, 1913; an associate member of the staff of the Pekin (Ill.) Public Hospital and Fairbury (Ill.) Hospital; on the staffs of the Mennonite and St. Joseph's hospitals; died April 23, aged 67, of acute coronary occlusion.

Smallman, Howard Lee ✠ San Rafael, Calif.; University of Michigan Medical School, Ann Arbor, 1916; member of the Industrial Medical Association; served during World War I; retired medical director of the Babcock & Wilcox Company in Barberton, Ohio; died in the Marin General Hospital April 1, aged 63, of acute congestive heart disease.

Starns, Charles Emanuel ✠ Tucson, Ariz.; University of the South Medical Department, Sewanee, Tenn., 1909; member of the American Trudeau Society; formerly associated with the Veterans Administration; died March 28, aged 70, of myocardial infarction.

Sumpter, William D. ✠ Nashville, Tenn.; University of Virginia Department of Medicine, Charlottesville, 1894; at one time on the faculty of the University of Tennessee College of Medicine, Memphis; member of the Nashville Academy of Medicine; on the staff of the Mid-State Baptist Hospital; died March 31, aged 83.

Swails, Jeremiah Arthur, Acton, Ind.; Illinois Medical College, Chicago, 1899; died March 28, aged 85.

Tyler, Russell Earle ✠ Bowie, Texas; Fort Worth School of Medicine, Medical Department of Texas Christian University, 1915; died in the Wichita Falls (Texas) State Hospital March 8, aged 62, of chronic myocarditis and pneumonia.

Ungar, Stanley Fireman ✠ New York City; University and Bellevue Hospital Medical College, New York City, 1927; member of the Aero Medical Association and the Association of Military Surgeons of the United States; veteran of World War II, winning the Air medal with three Oak Leaf Clusters and two Purple Hearts; on the staff of the Knickerbocker Hospital; died April 18, aged 54, of pulmonary embolism.

Van Beeck, Gregory Joseph ✠ Medical Director, U. S. Public Health Service, retired, El Paso, Texas; University of Minnesota Medical School, Minneapolis, 1922; retired from the U. S. Public Health Service May 31, 1952; died in the Veterans Administration Hospital, Big Spring, March 13, aged 60, of pulmonary embolism and cerebral thrombosis.

Webb, Fred Leland ✠ Nashville, Tenn.; Jefferson Medical College of Philadelphia, 1902; fellow of the American College of Physicians; served during World War I; formerly member of the city health department; died in the Vanderbilt University Hospital March 26, aged 83, of myocardial infarction.

Wilkinson, John Bennett, Alliance, Ohio; Cleveland Homeopathic Medical College, 1903; member of the Ohio State Medical Association; on the staff of the Alliance City Hospital, where he died March 9, aged 75, of cerebral thrombosis, duodenal ulcer, and pyloric obstruction.

Willcockson, Homer Bryant, Napa, Calif.; St. Louis University School of Medicine, 1910; served in France during World War I; for many years practiced in Illiopolis, Ill.; died March 28, aged 75, of acute myocardial infarction.

Williamson, Alexander Hamilton ✠ Pass-A-Grille Beach, Fla.; Harvard Medical School, Boston, 1913; specialist certified by the American Board of Psychiatry and Neurology; veteran of World War I; associated with the regional office of the Veterans Administration; neurologist at Veterans Administration Center in Bay Pines; formerly on the staffs of the Neurological Institute and the New York City Hospital in New York City; died April 10, aged 67, of coronary occlusion.

Wood, Alfred Edwin, New York City; Fordham University School of Medicine, New York City, 1911; associated with the Veterans Administration; died in the Jersey City (N. J.) Medical Center April 2, aged 72, of uremia.

Wood, Dennistoun, Jr. ✠ Palo Alto, Calif.; Stanford University School of Medicine, San Francisco, 1938; member of the American Academy of General Practice; interned at the San Francisco (Calif.) Hospital; served during World War II; on the staff of the Palo Alto Hospital; died April 11, aged 50, of myocardial infarction and coronary thrombosis.

Yard, James Christopher, New York City; Meharry Medical College, Nashville, Tenn., 1925; died March 22, aged 71, of arteriosclerotic heart disease.

FOREIGN LETTERS

AUSTRIA

Segmental Resection and Lobectomy.—At the meeting of the Society of Physicians in Vienna on May 18, Dr. M. Wenzl stated that segmental resection does not offer any functional advantage as compared with lobectomy. Segmental resection should not, therefore, be preferred to lobectomy for purely functional reasons and should be limited to patients with ideal tuberculous indications. Neither method shows any appreciable functional restrictions within six months after the operation, provided no postoperative complications occur. There is usually a return to the preoperative level. Pulmonary function may be expected to become greatly restricted after postoperative pleural complications and in the presence of thoracoplasty or adhesions that prevent an expansion of the lung parenchyma that remains after the resection. The expansion of the pulmonary parenchyma that is required for the filling up of the residual cavity after lobectomy does not present any risk with regard to the formation of emphysema. Overexpansion must be avoided only when an emphysema is present preoperatively, since an unfavorable course is possible, particularly in patients of advanced age. A permanent functional loss of 33% of the preoperative level usually occurs after pneumonectomy.

CHILE

Institute of Experimental Surgery.—In the first issue of the bulletin of the Institute of Experimental Surgery of the University of Chile, Dr. L. Perales and his co-workers reported an experimental study on the use on dogs of arterial homografts preserved by different methods (nutrient mediums, freezing, and lyophilization). The most practical method of preserving these grafts is freezing below −40 C. The success of transplantation depends on a good technique of anastomosis, asepsis, and uniformity of diameter between the vessel used and the aorta. A partial thrombosis of the graft does not alter its usefulness. Aortographic and autopsy studies did not reveal any changes in the size of the graft. During storage of the frozen or lyophilized grafts, the histological study made two or three months later revealed only minimal changes. The histological changes that were present in the grafts after transplantation were thickening of the intima, early degeneration of the muscular fibers, and late degeneration of the elastic fibers. The authors conclude that the same techniques of preservation and transplantation of grafts can be used in human beings.

In the same issue Dr. P. Castillo and his co-workers classified the different operations for the treatment of coronary insufficiency and concluded that the simplest method of revascularization is S. A. Thompson's. In the dog the introduction of inert substances into the pericardium produces intense pericardial vascularization and thickening. The experimental production of myocardial infarction in dogs, although different from its natural production in human beings, is of value in determining the protection revascularization confers on the heart. Thirty animals were divided into two groups, one of which underwent an experimental infarction and the other revascularization. In the second group infarction was later induced using the same technique. In those dogs that had undergone a previous pericardiopexy, the electrocardiographic changes were much less pronounced than in the control group.

In the same issue Drs. A. Escobar and A. Edwards reported that, using a modification of the Albanese technique, they produced mitral insufficiency in 60 dogs. After this was accomplished surgical correction was performed in 30 of these, using the atrial appendix in 10 and the pericardium in 20. Dogs with severe mitral regurgitation died of acute pulmonary edema. In those with moderate regurgitation the classical symptoms of heart failure gradually developed. Those on which correction was performed recovered quickly from the operation and did not have any limitation of physical activity or any symptoms that could be interpreted as heart failure. Electrocardiograms were made in the pre and postoperative period in 20 dogs, and only changes in the S-T segment and T waves were found. These were attributed to pericardial damage. In 10 dogs with mitral regurgitation, a phonocardiogram was made and a loud systolic murmur was demonstrated. In 10 of 17 dogs in which the mitral regurgitation was corrected, the murmur disappeared; in 6 its intensity decreased; and in only one was there no change.

Pyelonephritis.—In a symposium on pyelonephritis (*Revista medica de Chile*, October, 1955), Prof. Armas Cruz and his co-workers reported a series of 211 autopsies on patients from internal medicine wards only (urologic patients were excluded). Only 6% showed signs of chronic pyelonephritis, a figure much lower than reported by most foreign authors (about 15%). The authors consider only gross lesions of the kidney and not the small anatomic accidents or scars. This might explain the difference in frequency. The diagnosis of chronic pyelonephritis is based on a history of attacks of acute pyelonephritis, presence of bacteriuria (although bacteria may be found in the urine of 73% of normal persons), pus in the urine, radiological signs, and in some cases renal biopsy. These diagnostic criteria must be considered together rather than separately, and even then the diagnosis may be difficult. Only the pathologist can make a positive diagnosis. The authors selected a group of 200 hypertensive patients at random and found that in 19% edema was present and in 16% it was due to heart failure. Albuminuria was present in 55%, hematuria in 14.5%, bacteriuria in 73%, and pyuria in 10%. X-ray studies of the urinary tract showed pathological variations in only 23%. The cause of hypertension in these 200 patients was essential hypertension in 82%, chronic glomerulonephritis in 4.5%, chronic pyelonephritis in 7.5%, and miscellaneous causes in 6%.

Prof. O. Avendano and his co-workers analyzed the findings in 90 patients who on discharge from the hospital had diagnoses of chronic pyelonephritis. History of infection of the urinary tract was present in 44%, gynecologic disease was present in 31% (88% were women), and biliary tract disease was present in 27%. The most important diseases associated with the pyelonephritis were heart failure in 8%, coronary occlusion in 9.8%, acute left ventricular insufficiency in 3.2%, and diabetes in 11%. The physical examination in these 90 patients revealed hypertension in 83%, edema in 40%, and pain in the renal area in 13%. Laboratory tests showed bacteriuria in 98% and pyuria in 60%. The roentgenogram of the urinary tract was normal in only 10%. Uremia was present in 40% and in the rest the blood urea clearance was less than 50% of the normal value. Renal insufficiency was present in 14.8%. Treatment with antibiotics

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The items in these letters are contributed by regular correspondents in the various foreign countries.

caused disappearance of the urinary infection in 33% of the patients, of the hypertension in 47%, of the urinary syndrome in 36%, and of the uremia in 42%. The normalization of the blood pressure in many was only transitory and the pressure returned to pretreatment levels when the administration of the antibiotic was stopped.

DENMARK

Varicelliform Pustulosis.—Dr. Flemming Reymann in *Ugeskrift for læger* for April 19 reported three cases of varicelliform pustulosis. The first published description of this disease was given in 1880 by Moriz Kaposi, but it was not till 1941 that the agent responsible for it was identified as the herpes simplex virus. One reason this condition is so often fatal is it is usually preceded by some other severe skin disease, in most patients Besnier's prurigo. The records of the three patients show how varied the course of this disease may be, with an extensive vesicular rash in one, a strictly circumscribed rash in another, and an intermediate condition in the third. The recovery of the first patient, who had a temperature of about 40 C (104 F) during the first 10 days, was evidently due to use of cortisone and blood transfusion. Various combinations of penicillin, chlortetracycline, and other antibiotics were given without producing a definite response, and the author intends to be more conservative in the future in giving antibiotics, however great the temptation.

Poliomyelitis Vaccination.—The poliomyelitis department of the State Serum Institute in Copenhagen is in the charge of Dr. Herdis von Magnus, whose repeated visits to the United States have assured close contact between the Danish and American laboratories. Both the preparation and the mode of administration of the vaccine have differed somewhat in the two countries. In Denmark the intradermal route has been preferred to the intramuscular route partly because the risk of provoking paralysis is much less with the former than with the latter route. When the offer was made in 1955 of voluntary poliomyelitis vaccination of school children between the ages of 7 and 12 years, 98% of the children accepted it. Between April 25 and June 20, 1955, not a single case of paralytic poliomyelitis was reported in Denmark, but credit for this immunity could not be attributed solely to the use of the vaccine. In 0.1 to 0.2% of the vaccinated children there were slight reactions at the site of the injection, and in 42 children fever, headache, or other symptoms led to samples of blood and feces being sent to the State Serum Institute for examination. The poliomyelitis virus could not be found in any of these samples. In October a new campaign was started for the vaccination of children between the age of 9 months and school age. Later the issue of the vaccine was abruptly stopped, because the control tests had raised the suspicion that the desired inactivation of the vaccine had not been complete. Prof. H. C. A. Lassen in *Ugeskrift for læger* for May 3 states that it is too early to decide between the conflicting claims for a dead or living poliomyelitis vaccine.

Health of Greenland.—Dr. Mogens Fog-Poulsen in *Ugeskrift for læger* for May 3 draws attention to the wide fluctuations from year to year in death rates in Greenland largely due to epidemic diseases. The census at the end of 1954 showed a total of 24,000 native Greenlanders, 50% of whom now live in towns. In this year the birth rate was 45.1 and the death rate was 15.8 per 1,000 inhabitants, rates closely approximating those of Mexico. Tuberculosis continues to be the most important cause of death in Greenland, and it caused 25.9% of the total deaths, but of late years the tuberculosis death rate has fallen markedly. Deaths from drowning and other accidents show a much higher rate in Greenland than in Denmark. The infant mortality rate of 11.5% in Greenland is about four times as great as that of Denmark. Although pulmonary tuberculosis easily headed the list of causes of death, pneumonia was responsible for about 12% of all the deaths, cancer for only about 4%, and old age an even lower percentage. Accidents, on the other hand, were responsible for over 12%.

Prednisone for Asthma.—Dr. Erik Andersson in *Ugeskrift for læger* for May 10 reports the treatment of 15 asthmatics with prednisone. All 15 had been treated for several months with cortisone or hydrocortisone without benefit. They were then given 7.5 to 20 mg. of prednisone daily. After more than three months' experience with this drug under ambulatory conditions, Andersson found that all but one had benefited and nine had achieved complete freedom from symptoms. Since other observers had reported ulcers of the gastrointestinal tract as a result of use of this drug, the author was on the lookout for this complication, but in his patients no digestive complaints or other ill-effects were observed. Weekly blood examinations showed moderate leukocytosis and eosinopenia, and the fall in the number of eosinophils was more marked after use of prednisone than when cortisone was used. No pathological elements were found in the urine, nor was the blood pressure affected by this treatment, in which the beneficial effects were the more striking for the fact that none of the five asthmatics given a placebo showed any improvement. Indeed, all five became worse after one to two weeks of treatment with the placebo.

FRANCE

Testing Color Perception.—J. Baron and his co-workers (*Presse méd.* **64**: 561, 1956) used Farnsworth's 100-hue test for testing color perception in 137 subjects whose work in a factory required perfect color vision. The test appears to have some value for assessing a subject's capacity of discriminating hues. This constitutes an advantage over those other tests for color perception that provide information only about the inability to discriminate hues. It is time-consuming, however, and its interpretation may depend to some extent on the lighting and the fatigue and mentality of the subject, so that it may have to be repeated a number of times until a stabilized diagram is achieved.

Extradural Hematomas.—D. Petit-Dutaillis and his co-workers in *Presse médicale* (**64**: 521, 1956) stated that extradural hematomas of the posterior cerebellar fossa may be hyperacute, in which case the condition is usually inoperable and the prognosis is grave; acute, with a more favorable prognosis but often simulating subtentorial hematoma; or subacute or chronic, which forms are the most typical clinically and usually show such precise localizing signs as to justify exploration of the cerebellar fossa. The diagnosis is facilitated by (1) simple radiography of the cranium at a frontosuboccipital angle, which in over 80% of these patients reveals a fracture line involving the posterior fossa; (2) ventricular puncture, which may often show in subacute forms a hydrocephalus due to blocking of the cerebral aqueduct; and (3) cerebral angiography when feasible, which reveals a pathognomonic feature—the detachment of the torcular Herophili.

INDIA

Control of Leprosy.—Dr. Dharmendra in the *Pharmaceutist* for March, 1956, said that the sulfones had contributed to controlling the spread of leprosy. At first these drugs were too expensive to be within the reach of many patients, but now they are cheap and their dosage has been standardized. They are

also safe and effective. All patients should be treated as early as possible. For this purpose it is necessary to have a case-finding program and to make treatment available near the patient's home. This requires a network of mobile clinics. Work along these lines has been started, and 40 centers have been established in 17 states. During the course of the second Five Year Plan, it is proposed to add another 100 centers.

Virus Encephalitis.—K. N. Gour reported a series of 106 cases of virus encephalitis occurring in Agra (*J. Indian M. A.* 10:384, 1956). The incidence was at its highest in August, September, November, and January, but sporadic cases occurred throughout the year. Contagion did not seem to play an important part in the disease. There was no secondary incidence or cross infection in the wards. The death rate was reduced by the use of antibiotics, especially tetracycline.

Indian Red Cross Society.—Since last year's catastrophic floods in 11 states, the Indian Red Cross Society has distributed over 250 tons of milk powder, 2,500,000 multivitamin tablets, 1,200,000 chloroguanide tablets, 450,000 quinacrine tablets, 100,000 sulfaguanidine tablets, 28,000 chloramphenicol capsules, 17,000 vials of penicillin, 3,000 vials of streptomycin, 100,000 yd. of cloth, 10,000 blankets, 18,000 shirts, and thousands of pajamas, saries, dhoties, and bed sheets, according to the *Indian Red Cross Journal* for March. In addition, general relief supplies have been sent to various welfare centers and clinics in different parts of the country. Help was also received from other countries during this period.

ITALY

Idiopathic Obesity.—At the meeting of the Società Medico Chirurgica, Professor Lami, the president of the society, said that hyperalimentation still represents the fundamental problem in idiopathic obesity. Dietetic therapy is still of value, but it has no effect on obese people who eat little. This treatment consists of limiting the intake of fats or carbohydrates, increasing the relative intake of proteins, and limiting the ingestion of water. Medical therapy is indicated for those in whom obesity remains despite dietetic restriction. Thyroid extract combined with other hormones may be given to these patients. Amphetamine has a sympathomimetic ephedrine-like action. Its peripheral effect is adrenergic and goes beyond the simple decrease of the appetite. It probably accelerates the metabolism. The speaker treated 20 patients with idiopathic obesity and obtained favorable results with a combination of amphetamine, thyroid extract, and dietary restrictions. Loss of weight was constant and at times quite noticeable. There were no untoward side-effects. Often the patients reported a sense of general well-being. These results indicate that the effect of the two drugs is synergistic. The presence of hypertension is no contraindication to the use of amphetamine. In treating infantile obesity caused by hypopituitarism with hypogonadism, good results are obtained with dietary restrictions, amphetamine, and thyroid extract. The results are much better, in fact, than those obtained with hormonal replacement therapies, which are expensive and not free from risk.

Postradiation Lesions of Uterus.—Prof. E. Lenzi reported a series of 332 women in whom benign diseases of the uterus were treated with endometrial applications of radium (*Rivista italiana di ginecologia*, no. 3, 1956). After a follow-up of 1 to 15 years, six of the patients were found to require further treatment: four for cancer of the cervix, one for a benign metrorrhagia, and one for a benign ovarian cyst. Postradiation cancers of the uterus occur in less than 1% of those at risk, or fewer than the number of patients with cystic hyperplasia or adenomatosis of the endometrium (the most frequent indications of endometrial radiotherapy) in whom cancer of the uterus would develop. The author advocates the use of large doses of radium, because such doses not only may prevent benign postradiation manifestations but may also prevent the development of cancer of the uterus.

NORWAY

Prednisone and Prednisolone.—Solem and Römcke, in *Tidsskrift for den norske lægeforening* for May 15, reviewed their experiences with 20 patients with such diseases as chronic polyarthritis, spondylarthritis ankylopoietica, bronchial asthma, Boeck's sarcoid, the adrenogenital syndrome, acute hepatitis, and idiopathic steatorrhea. Since many of the patients had previously been treated with cortisone with varying degrees of success, it was possible to compare effects of the two drugs and to note that the prednisone was four or five times as potent as cortisone. The 10 patients with chronic polyarthritis were already doing well on cortisone therapy when they were switched to prednisone, whose action many of them preferred to that of cortisone. Instead of 50 mg. of cortisone daily, several of them received only 10 mg. of prednisone, and no great difference was observed when, after eight weeks on prednisone therapy, they were switched to prednisolone. The three patients with asthma responded well to prednisone, as did the two with acute hepatitis, who had complete freedom from their dyspeptic symptoms within the first 24 hours of the drug's administration. There were various side-effects, but none were alarming. There was a remarkable gain of appetite in most patients, and this may have been the outcome of the disappearance of pain in the patients with polyarthritis and of the dyspnea in the cases of asthma and Boeck's sarcoid. The gain of weight in some patients was embarrassing, and six sought dietetic relief from this state, which evidently did not depend on sodium and water retention, for diuresis was increased rather than decreased. Moon face developed in 12 patients, and in 4 this was very marked. The dyspeptic symptoms noted in three patients were not severe enough to necessitate withholding the drug; two of these had a previous history of gastric ulcer. Neither the moon face nor the dyspepsia had followed the earlier administration of cortisone. Several patients experienced slight restlessness and disturbed sleep, but they were not worse than after administration of equivalent doses of cortisone. No change in the blood pressure was observed, whether it had been normal or above normal before prednisone was given.

Ornithosis.—Ornithosis was unknown in Norway until 1955, when a case was reported in a 48-year-old man. Complement-fixation tests for this disease have been carried out in Oslo as a routine measure since July, 1954. As a result of this precaution, Gardborg and Lerche were able to report in *Nordisk medicin* for April 26 three cases in the children's department of the city hospital. The patients' ages were 2½, 9, and 11 years. They all showed manifestations of a respiratory infection with intense cough and much expectoration. Signs of meningitis were present in one of these patients, but all three recovered. There was a high antibody titer in the complement-fixation tests during the illness and a marked decrease in titer early in convalescence, a characteristic finding in ornithosis. Close contact with birds (a parakeet in one case and pigeons in another) was noted in two patients.

Norwegian History of Medicine Society.—At a meeting in March of the editorial committee of *Tidsskrift for den norske lægeforening* it was decided to found the Norwegian History of Medicine Society. In the May 1 issue of the journal, Dr. Björneboe makes an appeal for a closer study of the history of

medicine. He quotes Winston Churchill as saying: "The longer you can look back, the further you can look forward." The growing interest now taken in the history of medicine probably reflects a tendency among members of the medical profession to be more socially minded than they have been in the past.

Changing Causes of Death.—The leading Norwegian life insurance society, Hygea, has included in its annual report for 1955 a comparison of the causes of death among its subscribers in 1920 and 1955. In this 35-year period, tuberculosis and cancer have changed places as the cause of the greatest number of deaths. In 1920 tuberculosis accounted for 36% of all the deaths, whereas, in 1955 the corresponding figure was only 3%. In 1920 cancer accounted for only 3% of all the deaths, but in 1955 the corresponding figure was 23%. The diseases of the cardiovascular system have grown greatly in importance as the cause of death, and in 1955 they accounted for 22% of all the deaths. Fatal accidents have also grown in frequency, for, whereas they accounted for 13% of all the deaths in 1920, the corresponding figure for 1955 was 18%. In the same period the diseases of the central nervous system have shifted from 7 to 11%.

UNITED KINGDOM

Excessive Demand for Ambulances.—The Minister of Health told hospital authorities that patients must not use ambulances if they can make the journey on foot or by public conveyance. The demand on ambulances has exceeded their carrying capacity. Ambulances must meet many urgent calls that cannot be planned for in advance. A special responsibility rests on physicians to satisfy themselves that patients cannot travel by other means. More than 60% of all calls on the ambulance service come from hospitals. Every hospital has been asked to appoint an officer to coordinate requests for ambulances. The use of the hospital car service, manned by volunteers, has resulted in many areas in an efficient, economical, and much appreciated service for patients who are able to sit up. Local authorities are asked to make full use of such volunteers whenever possible. The use of two-way radio communication, standardization of ambulance fleets, the replacement of two-to-four-stretcher ambulances by dual-purpose vehicles, and the use of diesel-powered ambulances should improve the efficiency of the local ambulance services.

College President Replies to British Medical Journal.—Sir Russell Brain, president of the Royal College of Physicians, in a letter published in the *British Medical Journal* of April 14, 1956, replied to the attack the journal made on him and the college. The journal described the college as being "antique" in method and "confused in purpose." According to Sir Russell, the article seriously misrepresented the college's work and exemplified a growing threat to freedom in medicine. Its policy has always been to cooperate with the government and to participate in decisions on all health service matters. Sir Russell said, "If one wants examples of confusion of purpose one need look no further than the Association, whose leaders recently had to eat their words on the heroin ban and withdraw their evidence from the Royal Commission on Marriage and Divorce." The clear implication of the journal's article was that the British Medical Association should occupy a position of exclusive privilege and power in medicine. It is, therefore, vital that the royal colleges should remain free to express independent views.

Medicine in Russia.—The Minister of Health in Russia is a practicing surgeon when she is not occupied with the duties of her office, according to an article in the April issue of *Family Doctor* by Dr. John Burton on his visit to Russia. In Russia young physicians in general practice and taxi drivers are paid about the same, each being considered equally valuable to the community. Things that impressed Dr. Burton included the way Russians wanted to know what was wrong with them when ill and expected to have a full explanation; the polyclinics or health centers, where a visit for a consultant's opinion simply meant a walk down the corridor; the large number of women physicians; the regular mass health examinations; the spotlessness of the overcrowded homes in Moscow and Leningrad; the mania for lace curtains and aspidistras; the sanatoriums and rest homes for those suffering from fatigue or nervous strain; and the cheerful, clean, healthy-looking children.

Vitamin B_{12} and Growth in Children.—The effect on growth and health of a daily supplement of 50 mcg. of cyanocobalamin (vitamin B_{12}) was studied in 22 children, aged 1 to 2 years, over a period of six months, by D. A. Craigmile and her coworkers (*Month. Bull. Min. Health* **15**: 78, 1956). A comparable group of 25 children was given a placebo. At the end of the observation period, there was no difference in the two groups of children. The children given vitamins had gained an average of 2 lb. 9 oz. in weight and 4.5 cm. in height and the control group 2 lb. 9 oz. and 4.7 cm. Nor was there any effect on the incidence or duration of disease; in both groups there were 13 absences from the day nurseries due to colds. The average number of days of absence for colds was 6.2 and 6.3 respectively. Similarly, 14 children in the study group got measles and were absent for an average of 20.8 days, while 17 children in the control group got the disease and were absent for an average of 22.1 days. The nursery attendants were unable to detect any difference in appetite or behavior in the two groups.

Center for Adult Spastics.—The National Spastics Society has just opened what is claimed to be the first residential and treatment center in the world for adult spastics. It has accommodations for 30 men and women aged 25 to 40 affected by cerebral palsy. The aim of the center, which is 40 miles from London, is to create a community of adult spastics in which treatment can be carried out in a companionable environment.

Perils of Health Propaganda.—The use of slogans on postal envelopes is now a well-recognized method of propaganda. That it is not without its hazards is illustrated by the recent experience of a health officer. According to the *Medical Officer*, this officer, as part of his clean food campaign, obtained permission to affix labels bearing a slogan on all letters leaving the town hall during a particular week. The slogan was, "It's safer if it's freshly cooked." All went well until it was realized that the letters bearing this laudable slogan included those with the cremations receipts.

Carcinoma of Thyroid.—J. E. Piercy (*Proc. Roy. Soc. Med.* **49**:174, 1956) reported that, of 1,700 thyroidectomies performed in the past five years, 58 (3.4%) were for carcinoma of the thyroid. Of these, seven were found in toxic goiters. Of nontoxic nodular goiters operated on, 8% were malignant, the tendency to malignancy being particularly marked in the discrete adenomas. Considering all differentiated carcinomas, the presence and amount of papillary tissue appear to determine the prognosis; the more papillary tissue found, the slower growing and less malignant the tumor. Unlike cancer elsewhere in the body, carcinoma of the thyroid is more malignant in the aged than in the middle-aged and young. In this series, there were 11 patients aged 60 or over. The diagnosis in all was clinically obvious, and seven died within a few weeks to a few months after operation. The majority had undifferentiated carcinomas or reticulosarcomas. In three, the carcinoma was found in a lymphadenoid or Hashimoto goiter. Two of these had undifferentiated goiters and died but the third had the

differentiated papillary type and was alive and well when last seen. It is recommended that all lymphadenoid goiters be removed on this indication only, without considering other forms of treatment. The prognosis in the middle and younger age groups is much better. Most begin in a discrete adenoma. The tumor may have been present for months or even years, but with a recent increase in size or change in consistency. Five of the 47 patients in this group died; all were about 50 years of age. Of the 42 patients alive and well, 7 had undifferentiated carcinomas.

Treatment consists of total or near-total thyroidectomy. The involved lobe should be entirely removed with the adherent strap muscles and any enlarged nodes. The nodular goiter in children and young adults is to be viewed with grave suspicion, as it often proves to be malignant or at any rate recurs after operation and after reoperation, the final recurrences being malignant. A recurrence within a few years of the operation in these young people should be treated by either a near-total thyroidectomy or by radioactive iodine ablation. Piercy is tending more to perform total thyroidectomy when possible in all cases of clinically obvious carcinoma, unilateral or bilateral, with or without metastases, to give radioiodine therapy a better chance should metastases be present or arise later in other parts of the body. Dr. E. E. Pochin stated that three factors influence the selection of patients for radioiodine treatment. 1. Radioiodine alone is never as reliable as total excision of a thyroid carcinoma. 2. Anaplastic thyroid cancers rarely respond to radioiodine treatment, whereas differentiated ones usually do. 3. Such tumors will rarely concentrate radioiodine and prove amenable to treatment by this means while normal thyroid tissue remains in the body. The necessary preliminary for radioiodine treatment therefore is ablation of the thyroid, either by total thyroidectomy or by means of radioiodine. Full myxedema usually develops two to three months after thyroid ablation, and the iodine uptake of the tumor commonly becomes maximal then or soon thereafter. The percentage of the dose concentrated in tumor tissue cannot rationally determine the giving or postponement of treatment when neither the mass nor the radiosensitivity of the tumor is known. The author, therefore, starts treatment if uptake is clearly detectable in tumor tissue by normal counting methods in a patient who has become myxedematous. Measurements of the percentage of the radioiodine dose concentrated at tumor sites is of great value in later treatment. He normally gives repeated 150-mc. doses until this figure falls below 0.01% or uptake is no longer detectable, increasing the interval between doses as the percentage falls. He uses an interval of six to eight weeks at first and while the total uptake exceeds 1%, giving doses every three or four months when the figures have fallen below 0.1%, and continuing annual tests when uptake is no longer detectable. From the time that myxedema has developed and uptake is established, the patient receives thyroxine continuously, except for the four weeks before each dose of radioiodine.

Diaper Rash.—Writing in the *British Medical Journal* (1:782, 1955), Dr. J. P. Bound states that thrush infection of the diaper area is a common condition in babies under 6 months of age. The red, dry areas of infection desquamate, leaving characteristic isolated and denuded vesicles with a surrounding white collar of thin epithelium. Yeasts were cultured from 42 to 47 infants with this condition, and in 39 cultures Candida albicans was identified. Less than one-third of the babies showed any associated oral lesions of thrush, but there was a significantly increased incidence of thrush vaginitis in the mothers of affected babies, suggesting that hands were the method of transfer of infection. These cutaneous lesions were painted with 1% aqueous solution of gentian violet at first. Results were satisfactory, but 0.1% aqueous solution of thimerosal followed by a paste of titanium dioxide was found more practical and usually cleared the condition in two weeks.

Bronchial Carcinoma.—Dr. N. C. Oswald in the *British Medical Journal* (1:761, 1955) reviewed a series of 272 cases of bronchial carcinoma and found that the prognosis is still poor in spite of advances in surgery and radiotherapy during the last 25 years. Of 191 patients followed up for at least a year, 41% died within three months and 76% within a year of diagnosis. One encouraging feature was the five-year survival of 50% of those having well-differentiated carcinomas who underwent surgical resection. On the whole, however, surgical treatment has not been encouraging and pneumonectomy has been associated with a 10% case fatality rate. The extent of operative procedures is limited by the general health of the patient. Radical radiotherapy has also proved disappointing. It relieved respiratory distress but required great judgment in its use. Prophylaxis depends on further studies on atmospheric pollution with carcinogens. Early diagnosis is difficult due to the late onset of symptoms and the difficulty of interpreting minimal radiographic changes in the lungs. Three and a half months was the median duration of symptoms prior to diagnosis. Better selection of patients for radical treatment, with a view to reducing the complications of treatment, is likely, but, although surgical and radiotherapeutic techniques continue to advance, it is possible that a new approach through hormonal or chemotherapeutic agents may be developed.

Water Requirements.—In 1948 an informal committee was set up to study water consumption. The committee found that in the 10 years 1938 to 1948 a 20% increase had taken place in England and Wales. Outside the London Metropolitan Water Board area this increase was 30%. The evidence available suggested that consumption would be doubled by 1970. Industry has rapidly expanded since the war, and the water required by one oil refinery, for example, recently increased by 4 million gallons a day. Agriculture now requires more water, and water supplies have been piped to rural areas to increase the hygienic standards and attract labor back to the country. It is further estimated that the amount of water wasted per day is 3 to 10 gallons per capita. Surface water sources are being greatly polluted by industrial waste and the underground waters are not being replenished as rapidly as formerly owing to draining of the land and extensive building programs. The main difficulty is in storing water. Reservoirs involve large expenditures of capital and cover large areas of agricultural land.

Prostatic Smear Diagnosis.—Fergusson and Gibson in the *British Medical Journal* (1: 822, 1956) stated that the interpretation of the cytology of prostatic smears requires special experience and is likely to be practiced only in specialized centers. In performing prostatic massage, an attempt should be made to obtain the secretion from the apex of the gland, as that from the base is often contaminated by vesicle exfoliation. The smeared slides are fixed with Schaudinn's fluid and stained with hematoxylin and eosin. In carcinoma of the prostate, abundant cells can be expected in the smear unless excessive scirrhous reaction has blocked the ducts. The normal prostatic cells usually occur singly or in small groups with regular nuclei. In contrast, the malignant cells occur in groups, their nuclei are irregular, larger, and hyperchromatic, and little cytoplasm is present. Other cells seen may be transitional bladder cells, histiocytes, blood cells, or spermatozoa. After estrogen therapy, glycogen-filled cells and squamous cells appear. The results of 100 cases that were later available for histological examination of the prostate gland were analyzed and a definite cytological diagnosis was recorded. Of 38 cases where smear diagnosis indicated carcinoma, this was confirmed in 36; of 7 others whose smears suggested malignancy, this was confirmed in 2; and, in the remaining 55, whose smears appeared normal, only 2 were found to have a malignancy. Thus, this technique had an accuracy rate of 95.7%.

CORRESPONDENCE

OXYGEN FOR NEWBORN INFANTS

To the Editor:—The Committee on Fetus and Newborn of the American Academy of Pediatrics has prepared the following statement on the use of oxygen in premature and small infants.

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STATEMENT CONCERNING THE USE OF OXYGEN IN THE TREATMENT OF PREMATURE INFANTS

Prepared by the Committee on the Fetus and Newborn Infant of the American Academy of Pediatrics.

The accumulated evidence definitely incriminates the excessive use of oxygen as a major factor in the cause of retrolental fibroplasia in premature infants. "Excessive use" implies concentrations of more than 40% or the prolongation of administration after the indication for its use has passed. It is possible that even short periods of administration of higher concentration may be harmful.

On the other hand, the intelligent use of oxygen can be the means of saving the lives of hypoxic, dyspneic, and cyanotic babies. It would be unwise to arbitrarily deny adequate oxygen (and perhaps life) to those babies because of possible injury to the eyes of some.

Accordingly, the following recommendations are made:

1. Oxygen should be prescribed only on medical order the same as any drug or treatment. (Except in emergency)
2. Oxygen should not be administered routinely but only upon specific medical indication.
3. Oxygen concentration should be kept at the lowest possible level that will relieve the symptoms for which it is given, if possible not over 40%.
4. Oxygen therapy should be discontinued as soon as the indication for it has passed.
5. Ordinarily, the indications for supplemental oxygen are general cyanosis (not acrocyanosis) and dyspnea. The urgency of treating these symptoms must rest with the clinical judgment of the attending physician.
6. Oxygen concentration must be determined by means of an oxygen analyzer as often as necessary to keep it properly stabilized but at least every four hours.
7. A source which does not contain or deliver more than 40% oxygen will insure against exceeding that concentration but may not be adequate in those occasional instances where higher concentration is desired. If such a restricted source of oxygen is employed, additional oxygen should be available for those special instances where it is indicated.
8. There are no apparent contraindications to the use of supplemental oxygen in infants weighing more than five pounds.

WYMAN C. C. COLE, M.D.

THE SOCIAL WORKER

To the Editor:—The interesting article by Margolis and Mendelsohn, "The Medical Social Caseworker in 'Private' Medical Practice" (*J.A.M.A.* **161**:309 [May 26] 1956), calls for some comments. This article shows how a psychiatrically trained social worker can contribute to the management of a difficult psychosomatic problem. The family doctor may not need such cooperation; he is informed not only about the physical ailments but also about the social and family background of his patients. The group of specialists, or the outpatient clinic of a large hospital, may not know their patients as well, and cooperation of a qualified social worker may be useful and is certainly timesaving. Serious thought should be given, however, to the extent to which delegation of the duty of obtaining a detailed history is desirable. The interpolation of a third person has the inherent danger of abolishing the close doctor-patient relationship. This may be unavoidable in a large outpatient clinic but may not be desirable in any other form of medical practice. The article by Schottstaedt and Gwinn, "The Social Worker as a Teacher in Medicine" (*J.A.M.A.* **161**:318 [May 26] 1956), treads on more dangerous ground. Nobody could fail to consent to the concept of multiple etiological factors, and the home visiting program appears admirable. The difficulties arise with scrutiny of the motivations and the aims, as listed: "The social worker is particularly well fitted . . . [because] . . . She has had ample opportunity to acquire sensitivity to dynamic intrafamilial relationships and to learn to deal simultaneously with people whose close ties do not prevent them from having diverse attitudes and conflicting aims. . . . Her training imbues her with a considerable awareness of social roles and of the impact of roles on other individuals. She has a wide background of social and cultural information." To reduce this involved phraseology to plain English, it is postulated that the training of a social worker equips him with some esoteric capacity of dealing successfully with the common human problems, particularly with tensions and conflicts in the family and social situation of the patients.

The teaching in the discipline of social service consists basically of a selection from certain parts of social sciences, particularly sociology, and of medicine, particularly psychiatry. Equipped with this knowledge and certain interviewing techniques, the social worker plays an important role in medical teamwork, particularly in collecting information that may help the physician to assess the circumstances and the social and familial background of his patients. This knowledge may be essential for successful treatment or rehabilitation of certain groups of patients. Much more research will be necessary and a much greater body of basic knowledge in this discipline will have to be accumulated before the social worker will be equipped for "establishing in the mind of the student a broader perspective in preventive medicine . . . [that] . . . becomes an integral part of patient care in terms of prevention of disease, disability, and economic handicap, as well as in education toward a fuller and more satisfying way of life." The social worker is still striving for wider recognition of his work and deserves our sympathy and assistance. His aims, however, will not be furthered by reaching out for ill-defined and nebulous concepts, for which the present body of knowledge of this discipline does not equip him.

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SEROTONIN

To the Editor:—One particular in the otherwise excellent editorial entitled "Serotonin" in THE JOURNAL, June 2, 1956, page 460, could readily be misconstrued. The second paragraph notes the interesting studies of Erspamer and his colleagues on the substance they called enteramine and considered to be a phenolic amine until, by adopting paper chromatography, they were able to identify this substance with serotonin (5-hydroxytryptamine) not "in 1952," but in 1951 (Erspamer and Boretti: *Arch. internat. pharmacodyn.* **88**:296, 1951). Chronology suffers more severely in the next sentence, for the editorial goes on to state that "Meanwhile, Page and his associates had succeeded in isolating and identifying as 5-hydroxytryptamine a substance from blood serum long known to possess vasoconstrictive properties . . . previously . . . known by a variety of names, including serotonin and vasotonin." In my dictionary (Webster's New World) meanwhile has the meanings "in or during the intervening time" or "at the same time," so that the implication is that the work of Page and his group was either sequential to or contemporary with that of Erspamer and his associates. Actually, the report by Rapport, Green, and Page on the isolation and characterization of serum vasoconstrictor (serotonin) was in the *Journal of Biological Chemistry* (**176**:1237, 1948). This was also nearly the first use of the name, since I coined it at that time. Problems of scientific priority can be both vexed and vexatious. Simultaneous discovery is by no means uncommon. However, in this case, the record is clear and the time gap fairly wide, and I wonder whether the editorial, as written, does not imply an erroneous temporal sequence.

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MISCELLANY

THE ISOTOPE FARM

It is a pleasure to have been invited to participate in this occasion—the dedication of the radioisotope farm at the Medical College of Virginia. This marks a new step forward in medicine in Virginia, and the results of your researches in the coming years will be eagerly anticipated by the medical profession and life scientists both in this country and abroad.

Medicine today stands at the threshold of a major advance—not only along the lines of practical applications in diagnosis and therapy, but also in its basic approaches to unanswered, fundamental research problems. In the language of the physicists, the field of medicine is just about ready for a "quantum jump," and it is my feeling that this will come about through the increased use of isotopically labeled drugs and medicinals.

Isotope farming is the culture of biochemicals by raising plants and animals in an isotopically enriched environment such as an atmosphere of radioactive carbon dioxide. The difficulties of direct synthesis of most biochemicals are such that isotope farming is an attractive method for their production. In this manner, it is possible to raise any plant, and in principle any animal, so that there is equal probability that the carbon atoms in the molecule will be either stable or radioactive and therefore a condition of uniform labeling of the entire plant or animal will result. The first experiments were done with small, gas-tight laboratory assemblies so that the simplest molecules could be produced in labeled form. However, the labeling generally was nonuniform for the reason that the plant had not been in a radioactive environment during its entire life history.

The first large isotope farm was that installed at the Argonne National Laboratory several years ago. It used the laboratory culture methods developed by Dr. Geiling and others and applied them on a larger scale. These were refined further and applied for several years by Dr. Norbert J. Scully, in whose skillful hands the potentialities of a full-scale farm were demonstrated. Dr. Scully's main efforts were devoted to plant culture, and the problem of closing the cycle by feeding animals with radioactive plants and utilizing the animal fertilizer and excretion products for fertilization of "second generation" plants has not as yet been solved. It may well be that the difficulties of closing the cycle are so large that, as compared to the benefits, it may be unwise to insist on this last feature of perfection, but in the end one might hope that an isotope farm would be a closed system in which the plants and animals were in equilibrium and the marking isotopes were circulating freely.

Usefulness of Isotope Farms

In especially designed chambers such as those you have here in this farm we dedicate today, plants such as alfalfa, soy bean, buckwheat, rye, tobacco, foxglove, and poppy have been cultured in a radioactive carbon dioxide atmosphere so that all of their substance has been labeled with radiocarbon atoms in proportions of a few atoms of carbon-14 for every million ordinary carbon atoms. These plants have served to produce a number of useful radiochemicals.

In the first place, it has been possible to detect and isolate natural products from these plants which occur in concentrations which are beyond the limit of detection with the use of ordinary chemical assay methods. Among the more important of the labeled compounds isolated have been digitoxin, morphine, nicotine, sugars, amino acids, proteins, and vitamins.

By way of example, the digitoxin so produced has been used to study the problem of placental transfer. Radioactive digitoxin was given to four pregnant women and the concentration of the labeled drugs and its metabolic products determined in the various fetal organs. Less than 1% of the administered glycoside was detected in the fetus as unchanged digitoxin and less than 3.5% as its metabolites.

The applications listed are purely illustrative. It is clear that in the products from the isotope farm one has an essentially limitless reservoir of tools for the investigation of biochemical mechanisms. Certainly the future benefits of labeled medicinals from farms such as the one we dedicate here today will be many times those already obtained.

Future for Isotope Farming

It has been demonstrated already that the isotope farm products are of great value in biochemical and medical research. There is another possibility that I wish to mention—namely, that doctors may come to you for radioactive labeled medicines in normal medical practice for diagnostic purposes.

It would seem not unlikely that the feeding of a radioactive sugar pill to a patient suspected of having an abnormality in his sugar metabolism would furnish an easy and particularly illuminating way of testing that metabolism. Perhaps a patient would be asked to blow up a balloon so the carbon dioxide in his breath at various times after the taking of the pill could be sampled for radioactive carbon dioxide, and it might also be illuminating to examine the radioactive sugar content of the blood and urine at various times. In this way one might develop a method for testing for abnormalities in the sugar metabolic mechanism which would be far more sensitive or in other ways more desirable than present techniques. Research quantities of radioactive sugars labeled in specific positions have already been prepared at the National Bureau of Standards. It would seem not unlikely that in the future isotope farming may be done for routine diagnostic applications.

With the exception of oxygen and nitrogen, radioisotopes of most of the physiologically important elements can be introduced into living organisms by the farming technique. These include most importantly, in addition to radioactive carbon, radioactive hydrogen or tritium, the 12.25-year half-life isotope of hydrogen; radioactive sulfur, the three-month half-life isotope of sulfur; radioactive chlorine, the 2-million-year isotope of chlorine; the 3-year radioactive sodium-22; and possibly 14-day radioactive phosphorus, even though its half-life is relatively short. With these five or six isotopes, plants and animals can be labeled for half of their elements and so serve as sources for all of the biochemicals.

Consider the labeling with tritium of such a simple biological fluid as water; saline solution made in this way can be used for blood volume determinations—the technique consisting of withdrawal of the sample of blood and the addition of a known volume of the radioactive saline solution and the reinjection followed by subsequent sampling of the blood to determine the extent to which the radioactive tritium had been diluted. This measurement might well prove to be very useful in diagnosis of certain abnormalities. Certainly there seems to be no doubt that one of the great benefits of the atom will be not only the use of isotopes in medical research, but their use in routine diagnostic practice.

One must be careful to keep the amounts of radioisotopes ingested by the patients below any dangerous levels. Fortunately this is easily possible when modern radiation detection techniques are used. It also seems clear that the costs involved are not excessive and that all that remains to be done is the development of the tests and the marketing of the instruments. Of course it will be necessary to train medical students in the sensitive techniques necessary, and I hope that the Medical College of Virginia will pioneer in this instruction.

In conclusion I congratulate the Medical College of Virginia and its sponsors for their farsightedness in undertaking isotope farming. Their pioneering attitude and effort will serve the country well in helping to emphasize the promise and importance of this technique for applying the atom to medical research and practice. We cannot at this time visualize all the benefits which will come from this farm. The only certain thing is that by embarking on this road you will uncover new fields of benefit which, like those we have found already, will add to the vast store of knowledge that the atom has brought us. I believe firmly that, even though we had not any other benefits from the splitting of the atom, isotopes alone would themselves reward and repay us for all of the effort and funds we have invested in our atomic energy project.

Slightly abbreviated remarks by Dr. Willard F. Libby, Commissioner U. S. Atomic Energy Commission, at the dedication of the Isotope Farm at the Medical College of Virginia, Richmond, May 10, 1956.

Postgraduate Courses for Physicians

Compiled by the Council on Medical Education and Hospitals for the Period Sept. 1, 1956 to Aug. 31, 1957

The data in the following list of postgraduate courses have been compiled by the staff under the supervision of Dr. Glen R. Shepherd, Assistant Secretary of the Council on Medical Education and Hospitals. The Council desires to express appreciation to the officers of the medical schools, hospitals, and medical societies who have cooperated in furnishing the information essential to the preparation of this report.

Edward L. Turner, M.D., Secretary
Council on Medical Education and Hospitals

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INTRODUCTION

The second annual listing of postgraduate courses for physicians appears in the following pages of THE JOURNAL. This listing is for the period Sept. 1, 1956 to Aug. 31, 1957. The annual listings replace the two semiannual lists that appeared before last year.

Postgraduate medical education courses consist of planned activities for doctors of medicine intended to refresh practicing physicians in the various aspects of their basic medical education, to provide information on new developments in medicine, and to stimulate further educational efforts by the participants. Such courses are not designed to provide the lengthy intensive education required for specialist training and thus they do not ordinarily lead either to credit toward graduate degrees or to specialty board certification. These are in the field of graduate medical education and usually consist of residency training or fellowships. Postgraduate courses are shorter than and may be less formal than graduate education programs.

Though the educational values of medical society meetings and conventions as well as hospital staff and departmental meetings can be very real and worthwhile, such meetings are not usually here listed as postgraduate courses. Lists of society meetings are to be found monthly elsewhere in THE JOURNAL.

The list of postgraduate courses was prepared from the unevaluated replies to Council questionnaires by American medical schools, the 1,400 hospitals having approved internship and residency training programs, and the various national, state, and specialty medical societies. This list is printed simply to provide for those physicians seeking postgraduate courses a point of departure through which further information can be obtained by writing to the institution or organization listed under Location. Such inquiries should be made before traveling to any course listed, because dates, time arrangements, and fees are subject to change. Courses for which there is insufficient registration may be canceled. Such inquiry of the sponsor is especially urged about courses scheduled for 1957 on which final information may not have been available to the sponsor at the time this list was prepared.

Many of the courses listed have co-sponsors to whom specific credit cannot be given because of space limitations. It is expected that the institution or organization sponsoring the course has provided such co-sponsor recognition to its registrants, for such organizations as the American and state heart associations, the American and state cancer societies, the National Foundation for Infantile Paralysis and its state chapters, the academies of general practice, other medical societies, and the various state boards of health are active and important in the field of postgraduate medical education.

The term "refresher course" has been dropped in favor of designations concerned with time and place arrangements. It was felt that the term "refresher" was a useful one immediately after World War II when truly refresher courses were needed by physicians returning to active civilian practice from the armed forces. At present, most courses contain so much current and new information that they cannot properly be designated as courses intended merely to refresh the physician in material he had previously studied.

In the following list under each category, the order of arrangement of the courses is alphabetically first by states, second by cities within states, third by the institutions and organizations within the cities, and last by date of course where several are offered by the same institution or organization.

For purposes of the list, two of the categorical terms have a special use in addition to their usual denotations. In the General Practice category are listed those courses having subjects embracing several fields, such as a course on management of mass casualties. The category of Internal Medicine is used also for courses on specific diseases, such as diabetes or rheumatoid diseases, that would be of major interest to the practitioner of internal medicine.

KEY

Designed
- G—Primarily for physicians in general practice and part-time specialty practice
- S—Primarily for physicians in full-time specialty practice
- B—For both of above

Type
- A—Time by arrangement
- BC—Brief course, less than five days regardless of hours per day
- BCI—Brief course intermittent
- SC—Short course, five or more days
- SCI—Short course intermittent
- CC—Circuit course (same course given at different locations)
- MT—Medical traineeship[*]
- HS(TV)—Home study by television
- HS(R)—Home study by radio
- HS(AV)—Home study by audiovisual kit
- HS(C)—Home study by correspondence or assigned reading
- O—Other

Time Arrangement
- C—Continuous or concentrated (e.g., as every day for five days)
- I—Intermittent (e.g., every Thursday for six weeks)

Methods of Instruction
- AV—Audiovisual aids (movies, slides, models)
- Cad—Cadaver demonstration or dissection
- Dem—Demonstration other than of patients
- EPP—Enrollee performs procedure
- O—Open questions
- Lab—Laboratory work
- Lec—Lecture
- LC—Live clinic
- Pan—Panel
- Pt. Dem.—Patient demonstration
- Sem—Seminar
- Sur—Operative surgery
- TV—Television
- WR—Ward rounds

[*] Medical traineeship is a residency-type experience in hospital, clinic, or school with participation in residents' conferences and ward rounds but usually without patient responsibility. This specially arranged experience usually lasts from two weeks to less than a year. Neither housing nor formal credit is provided. Traineeships usually do not involve night or emergency room duty.

ALLERGY

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Postgraduate Course in Allergy	American Academy of Allergy 208 E. Wisconsin Ave., Milwaukee 2; course at Hotel Statler, Los Angeles	G	BC	Sem, Lec, Pan, O, AV	18	2/ 1/57	2/ 3/57	C; 3 days	Nil
Allergy and Related Conditions	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SCI	Lab, Pt. Dem, LC, Lec, O, EPP	50	9/19/56 3/20/57	11/21/56	I; 10 sessions 5 hr. weekly, Wednesdays	125
Asthma, Hay Fever and Allied Diseases	Cook County Graduate School of Medicine 70; S. Wood St., Chicago 12	G	SC	Lab, Pt. Dem, LC, WR, Lec, O, AV, EPP	140	Arranged		C; 24 days	200
Asthma, Hay Fever and Allied Diseases	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SC	Lab, Pt. Dem, LC, WR, Lec, O, AV, EPP	500	Arranged		C; 6 mo.	500
Personal Course in Allergy	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SC	Lab, Pt. Dem, LC, WR, Lec, O, AV, EPP	140	Arranged		C; 24 days	200
Personal Course in Allergy	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SC	Lab, Pt. Dem, LC, WR, Lec, O, AV, EPP	500	Arranged		C; 6 mo.	500
Allergy	Tufts University School of Medicine Postgraduate Division 171 Harrison Ave., Boston	G	BC	Pt. Dem, Lec, Pan, AV	14	5/ 9/57	5/11/57	C; 3 days	20
Instructional Course in Allergy	The American College of Allergists, Inc. 401 Marquette Bank Bldg., Minneapolis 2; course at Palmer House, Chicago	B	BC	Lec	21	3/17/57	3/19/57	C; 3 days	Unknown
Allergy	Joint Committee on Post-Graduate Education 1313 Bedford Ave., Brooklyn 16, N.Y.; course at Beth-El Hospital, Brooklyn, N.Y.	G	SCI	Lec	20	10/56 4/57	12/56	I; 10 sessions 2 hr. weekly, Thursdays	30
Medicine PM 68	Montefiore Hospital 210th St. & Bainbridge Ave., New York	G	SCI	LC, Lec	24	9/13/56	12/13/56	I; 12 sessions 2 hr. weekly, Thursdays	50
Allergy	New York Polyclinic Medical School and Hospital 345 W. 50th St., New York	G	SCI	Lab, Pt. Dem, LC, WR, Lec	16	Arranged		I; 8 sessions 2 hr. twice weekly, Mondays, Fridays	50
546-A Allergy	New York University Post-Graduate Medical School 550 First Ave., New York	G	SC	Lab, LC	105	11/26/56	12/14/56	C; 15 days	250
547-A Refresher Course in Allergic Conditions	New York University Post-Graduate Medical School 550 First Ave., New York	G	BC	Pt. Dem, Lec	21	3/25/57	3/27/57	C; 3 days	55
545-A Allergy	New York University Post-Graduate Medical School 550 First Ave., New York	G	SCI	Pt. Dem, Lec	14	4/12/57	5/31/57	I; 7 sessions 2 hr. weekly, Fridays	45
Modern Concepts and Management of Allergic Diseases	Roosevelt Hospital, Institute of Allergy 428 W. 59th St., New York 19	G	SC	Lab, Pt. Dem, LC, WR, Sem, Lec, Pan, O, AV, EPP	80	5/13/57	5/24/57	C; 10 days	175
Basic and Clinical Allergy	Montefiore and Associated Hospitals 3459 5th Ave., Pittsburgh	G	SC	Lab, Pt. Dem, LC, WR, Sem, Lec, Pan, O, AV	60	4/ 1/57	4/ 5/57	C; 5 days	50
Allergy—Part III	The University of Texas Postgraduate School of Medicine Texas Medical Center, Houston 25, Texas	S	BC	Lec, O	12	9/56	9/56	C; 2 days	30

ANATOMY

Surgical Anatomy	College of Medical Evangelists 1720 Brooklyn Ave., Los Angeles 33	G	SCI	Lab, Lec, Pan, Cad	264	10/ 1/56	6/ 5/57	I; 66 sessions 4 hr. twice weekly, Mondays, Wednesdays	250
Surgical Anatomy—Upper and Lower Extremities	College of Medical Evangelists 1720 Brooklyn Ave., Los Angeles 33	G	SCI	Lab, Lec, Pan, Cad	104	10/ 1/56	1/ 9/57	I; 26 sessions 4 hr. twice weekly, Mondays, Wednesdays	125
Surgical Anatomy	College of Medical Evangelists 1720 Brooklyn Ave., Los Angeles 33	G	SCI	Lec, Pan, Cad	74	10/ 3/56	6/ 5/57	I; 37 sessions 2 hr. twice weekly, Mondays, Wednesdays	100
Surgical Anatomy—Upper and Lower Extremities	College of Medical Evangelists 1720 Brooklyn Ave., Los Angeles 33	G	SCI	Lec, Pan, Cad	26	10/ 3/56	1/ 9/57	I; 13 sessions 2 hr. weekly, Wednesdays	50
Surgical Anatomy—Thorax, Abdomen, and Pelvis	College of Medical Evangelists 1720 Brooklyn Ave., Los Angeles 33	G	SCI	Lab, Pan, Lec, Cad	104	1/14/57	4/17/57	I; 26 sessions 4 hr. twice weekly, Mondays, Wednesdays	125
Surgical Anatomy—Thorax, Abdomen, and Pelvis	College of Medical Evangelists 1720 Brooklyn Ave., Los Angeles 33	G	SCI	Lec, Pan, Cad	26	1/16/57	4/17/57	I; 13 sessions 2 hr. weekly, Wednesdays	50
Surgical Anatomy—Head and Neck	College of Medical Evangelists 1720 Brooklyn Ave., Los Angeles 33	G	SCI	Lab, Lec, Pan, Cad	56	4/22/57	6/ 5/57	I; 14 sessions 4 hr. twice weekly, Mondays, Wednesdays	75
Surgical Anatomy—Head and Neck	College of Medical Evangelists 1720 Brooklyn Ave., Los Angeles 33	G	SCI	Cad, Lec, Pan	22	4/24/57	6/ 5/57	I; 11 sessions 2 hr. twice weekly, Mondays, Wednesdays	35
Surgical Anatomy	University of California School of Medicine Los Angeles 24	G	SCI	AV	20	9/18/56	11/20/56	I; 10 sessions 2 hr. weekly, Tuesdays	75
Surgical Anatomy—Dissection	University of California School of Medicine Los Angeles 24	G	SCI	Lab, Lec, EPP	15	4/23/57	5/28/57	I; 6 sessions 2½ hr. weekly, Tuesdays	125
Gross and Applied Anatomy	Mercy Hospital Hillcrest Drive, San Diego, Calif.	G	SCI	Lab, Sem, Lec, AV, EPP	32	9/ 7/56	12/31/56	I; 16 sessions 2 hr. weekly, Wednesdays	Nil
Gross and Applied Anatomy	San Diego County General Hospital North End of Front St., San Diego, Calif.	S	SCI	Lab, Lec, AV	32	10/56	1/57	I; 16 sessions 2 hr. weekly, Wednesdays	Nil
Neuroanatomy	Program Director, 16th Conn. Post-Graduate Seminar in Psychiatry and Neurology Connecticut State Hospital, Middletown, Conn.; course at Yale University School of Medicine, New Haven, Conn.	S	SCI	Lab, Lec, O, AV	20	9/26/56	11/14/56	I; 8 sessions 2½ hr. weekly, Wednesdays	Nil
Anatomy 262, Demonstrations in Anatomy for Surgeons	Yale University School of Medicine 333 Cedar St., New Haven, Conn.	S	SCI	Lab, AV	50	9/56	5/57	I; one evening weekly for about 30 wks.	175
Anatomy 201, Special Dissections in Anatomy for Surgeons	Yale University School of Medicine 333 Cedar St., New Haven, Conn.	S	A	Lab		Arranged		I; Specially Arranged	to be Arranged
Surgical Anatomy on the Cadaver	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SCI	Lab, WR, Sur, Lec, O, Cad	20	9/20/56 3/21/57	11/29/56	I; 10 sessions 2 hr. weekly, Thursdays	125
Anatomy of the Head and Neck as Applied to Eye, Ear, Nose and Throat	University of Maryland School of Medicine Lombard and Greene Sts., Baltimore	B	SC	Lab, Sem	140	10/56	1/57	C; 35 days	150
Surgical Anatomy	University of Maryland School of Medicine Lombard and Greene Sts., Baltimore	S	SCI	Lab, Lec	90	1/30/57	5/30/57	I; 30 sessions 3 hr. twice weekly, Wednesdays	150
General Anatomy	University of Maryland School of Medicine Lombard and Greene Sts., Baltimore	B	A	Lab, Sem	Arranged	Arranged	Arranged	Arranged	Arranged

Key will be found on page 1278.

ANATOMY—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Dissection of Head and Neck Correlated with Clinical Surgery	Albany Medical College 47 New Scotland Ave., Albany, N.Y.	G	SCI	Lab, Lec, EPP	35	9/25/56	11/27/56	I; 10 sessions 3½ hr. weekly, Tuesdays	200
Dissection of Thorax and Abdomen Correlated with Clinical Surgery	Albany Medical College 47 New Scotland Ave., Albany, N.Y.	G	SCI	Lab, Lec, EPP	42	12/ 4/56	3/ 5/57	I; 12 sessions 3½ hr. weekly, Tuesdays	200
Dissection of Upper and Lower Extremities Correlated with Clinical Surgery	Albany Medical College 47 New Scotland Ave., Albany, N.Y.	G	SC	Lab, Lec, EPP	42	3/12/57	5/28/57	C; 12 days	200
Seminar in Functional Anatomy	State University of New York College of Medicine 450 Clarkson Ave., Brooklyn 3, N.Y.	G	SCI	Cad, Lec, O, EPP	50	1/19/57	5/31/57	I; 20 sessions 2½ hr. weekly, Fridays	Unknown
Anatomy—Surgical (a)	New York Polyclinic Medical School and Hospital 345 W. 50th St., New York	G	SCI	Sur, Sem, Lec, O, AV, EPP	18	Arranged		I; 6 sessions 3 hr. 3 times wk., Mondays, Wednesdays, Fridays	300
Anatomy—Surgical (b)	New York Polyclinic Medical School and Hospital 345 W. 50th St., New York	G	SCI	Sur, Sem, Lec, O, AV, EPP	12	Arranged		I; 6 sessions 2 hr. 3 times wk., Mondays, Wednesdays, Fridays	200
Anatomy—Surgical (c)	New York Polyclinic Medical School and Hospital 345 W. 50th St., New York	G	SCI	Sur, Sem, Lec, O, AV, EPP	12	Arranged		I; 6 sessions 3 hr. 3 times wk., Mondays, Wednesdays, Fridays	300
Anatomy—Surgical (d)	New York Polyclinic Medical School and Hospital 345 W. 50th St., New York	G	BCI	Lab, Sur, Sem, Lec, O, AV, EPP	6	Arranged		I; 3 sessions 2 hr. 3 times wk., Mondays, Wednesdays, Fridays	300
566-A Anatomy of the Head, Neck, and Thorax for Otolaryngologists	New York University Post-Graduate Medical School 550 First Ave., New York	G	SC	Lab, Cad	90	9/17/56	10/26/56	C; 30 days	125
411-A Surgical Anatomy of Head and Neck	New York University Post-Graduate Medical School 550 First Ave., New York	S	SCI	Lab, EPP	144	9/24/56	12/14/56	I; 36 sessions 4 hr. 3 times weekly, Mondays, Wednesdays, Fridays	100
412-A Surgical Anatomy of the Thorax and its Viscera	New York University Post-Graduate Medical School 550 First Ave., New York	S	SCI	Lab, EPP	144	9/24/56	12/14/56	I; 36 sessions 4 hr. 3 times weekly, Mondays, Wednesdays, Fridays	100
413-A Surgical Anatomy of the Abdomen	New York University Post-Graduate Medical School 550 First Ave., New York	S	SCI	Lab, EPP	144	9/24/56	12/14/56	I; 36 sessions 4 hr. 3 times weekly, Mondays, Wednesdays, Fridays	100
568-A Anatomy for Orthopedic Surgeons	New York University Post-Graduate Medical School 550 First Ave., New York	S	SC	Cad	35	1/ 7/57	1/11/57	C; 5 days	125
414-A Surgical Anatomy of the Female Pelvis	New York University Post-Graduate Medical School 550 First Ave., New York	S	SCI	Lab, EPP	144	3/25/57	6/14/57	I; 36 sessions 4 hr. 3 times weekly, Mondays, Wednesdays, Fridays	100
415-A Surgical Anatomy of the Genitourinary System	New York University Post-Graduate Medical School 550 First Ave., New York	S	SCI	Lab, EPP	144	3/25/57	6/14/57	I; 36 sessions 4 hr. 3 times weekly, Mondays, Wednesdays, Fridays	100

416-A Surgical Anatomy of the Musculoskeletal System	New York University Post-Graduate Medical School 550 First Ave., New York	S	SCI	Lab, EPP	144	3/25/57	6/14/57	I; 36 sessions 4 hr. 3 times weekly, Mondays, Wednesdays, Fridays	100
Anatomy	State University of New York Upstate Medical Center 766 Irving Ave., Syracuse, N.Y.	B	A	Lab, Cad	Arranged	Arranged		This course will be scheduled upon request and can be held anytime	Arranged
Anatomy 11-G	School of Medicine Western Reserve University 2109 Adelbert Rd., Cleveland 4	S	SC	Cad, Lec, O, AV		10/ 1/56	4/30/57	Enrollment may be made at beginning of any month	75 mo.
Surgical and Applied Anatomy	The University of Texas Postgraduate School of Medicine Texas Medical Center, Houston 25, Texas	G	SCI	Sur, Lec, AV	75	10/56	5/57	I; 34 sessions 2 hr. weekly, Tuesdays	50
				ANESTHESIOLOGY					
Postgraduate Course in Anesthesiology	Good Samaritan Hospital McDowell Rd. at 10th St., Phoenix, Ariz.	G	SC	Lab, Pt. Dem, LC, WR, Sur, O	120	Every 6 wk.		C; 30 days	Nil
Anesthesiology	College of Medical Evangelists Los Angeles 33; course at White Memorial Hospital Los Angeles 33	G	SC	LC, Lec, Pan	510	Every 4 mo.		C; 4 mo.	300
General Anesthesia	St. Francis Hospital 114 Woodland St., Hartford 5, Conn.	G	MT	Pt. Dem, LC, Sur, Lec, O, AV	Varies	9/17/56 1/ 1/57 3/ 1/57	Varies	Varies	Unknown
Regional Anesthesia	St. Francis Hospital 114 Woodland St., Hartford 5, Conn.	G	MT	Pt. Dem, LC, Sur, Lec, O, AV	Varies	9/17/56 1/ 1/57 3/ 1/57	Varies	Varies	Unknown
Annual Refresher Course Program	The American Society of Anesthesiologists, Inc. 188 W. Randolph St., Chicago 1; course at Municipal Auditorium Kansas City, Mo.	B	BC	Lec, O, AV	12	10/ 8/56	10/ 9/56	C; 2 days	1.50 per session
Course I Spinal, Regional & Intravenous Anesthesia	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SC	Pt. Dem, LC, Sur, Lec, O, EPP	70	Arranged		C; 12 days	150
Course III Inhalation Anesthesia	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SC	Pt. Dem, LC, Sur, Lec, O, EPP	140	Arranged		C; 30 days	200
Course IV Endotracheal Anesthesia	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SC	Pt. Dem, LC, Sur, O, EPP	70	Arranged		C; 12 days	150
Anesthesiology	University of Kansas Medical Center 39th and Rainbow Blvd., Kansas City, Kan.	B	BC	Lec, Pan, O, AV	21	4/15/57	4/17/57	C; 3 days	35
Anesthesiology for the General Practitioner	Maine General Hospital 22 Arsenal St., Portland, Me.	G	SCI	Sem, Lec, O, AV	17	9/21/56	5/17/57	I; 17 sessions 1 hr. every other Friday	Nil
Anesthesiology for General Physicians	Continuation Medical Education 1342 Mayo Memorial, University of Minnesota Minneapolis	G	BC	Pt. Dem, Lec, O	15	12/ 6/56	12/ 8/56	C; 3 days	30
Advanced Technique and Theory of Anesthesiology	American Society of Anesthesiologists 188 W. Randolph St., Chicago 1; course at Jewish Hospital of Brooklyn	G	SC	Pt. Dem, LC, WR, Sur, Sem, Lec, Pan, O, EPP	90	First wk. of every mo. including summer		C; 12 days	35
Anesthesia	University of Buffalo School of Medicine 3435 Main St., Buffalo, N. Y.	G	SC	Pt. Dem, LC, WR, Sur, Sem, Lec, Pan, O, AV, EPP	39	4/22/57	4/27/57	C; 6 days	75
Applied Anesthesiology	New York Polyclinic Medical School and Hospital 345 W. 50th St., New York	G	SC	Lab, Pt. Dem, WR, Lec, AV	480	10/ 1/56 4/ 1/57	12/31/56	C; 72 days	300
Regional and Spinal Anesthesiology	New York Polyclinic Medical School and Hospital 345 W. 50th St., New York	G	SC	Pt. Dem, WR, Lec, AV	80	Arranged		C; 12 days	150
Anesthetic Technics	New York Polyclinic Medical School and Hospital 345 W. 50th St., New York	G	SC	Pt. Dem, WR, Lec, AV	40	Arranged		C; 6 days	100
Post Graduate Courses in Anesthesia for Part-Time Anesthetists	New York State Society of Anesthesiologists 131 W. 11th St., New York; course at various hospitals throughout New York State	G	A	Pt. Dem, LC, WR, Lec, O, AV, EPP	Varies	Arranged	Arranged	I; Arranged	Nil

Key will be found on page 1278.

ANESTHESIOLOGY—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
512-A Regional Anesthesiology	New York University Post-Graduate Medical School 550 First Ave., New York	S	SC	Lab, LC, Lec	70	9/ 4/56 4/15/57	9/15/56	C; 12 days	225
511-A Anesthesiology (For Specialists)	New York University Post-Graduate Medical School 550 First Avenue, New York	S	SC	LC	70	9/56	6/57	C; 10 days may enroll any Monday	150
510-A Anesthesiology: Endotracheal and Related Methods	New York University Post-Graduate Medical School 550 First Ave., New York	S	SC	LC, Lec	35	10/ 1/56 1/ 7/57 3/25/57	10/ 5/56	C; 5 days	100
516-A Safety Practices in the Operating Room	New York University Post-Graduate Medical School 550 First Ave., New York	G	BC	Dem, Lec	14	12/14/56 3/ 1/57	12/15/56	C; 2 days	20
514-A Anesthesiology	New York University Post-Graduate Medical School 550 First Ave., New York	G	SC	Lab, Pt. Dem, LC, Lec, EPP	140	5/ 6/57	5/31/57	C; 20 days	300
The General Practitioner in Anesthesia	Rochester General Hospital 501 W. Main St., Rochester, N. Y.	G	BC	Lab, Pt. Dem, Sur, Lec, Pan	25	5/15/57	5/17/57	C; 3 days	15
Recent Advances in the Physiological Aspects of Anesthesia	Graduate School of Medicine University of Pennsylvania, Philadelphia	B	SC	Lec, Pan, O, AV	24	3/18/57	3/20/57	C; 3 days	70
Anesthesiology	The University of Texas Postgraduate School of Medicine Texas Medical Center, Houston, Tex.; course at Scott and White Clinic-Hospitals Temple, Tex.;	G	MT	Pt. Dem, WR, Lec	Unknown	9/56	5/57	1st Monday of each mo.	25
Postgraduate Refresher Course in Anesthesiology	University of Texas Postgraduate School of Medicine Temple, Tex. course at Scott and White Memorial Hospitals Scott, Sherwood, and Brindley Foundation Temple, Tex.	G	SC	Pt. Dem, WR, Sur, Sem, Lec, EPP	176	9/56	5/57	C; 24 days a mo.	25
Anesthesiology	The University of Texas Postgraduate School of Medicine The Texas Medical Center, Houston 25, Tex.	G	BC	Pt. Dem, Lec	18	Unknown		C; 3 days	45

BASIC SCIENCES
(See also Internal Medicine and Physiology)

General Applied Medical Science	University of Colorado School of Medicine Office of Postgraduate Medical Education 4200 E. 9th Ave., Denver	G	SCI	Sem	Unknown	9/56	4/57	I; once weekly for 8 mos., Thursdays	10
Biochemical Background of Clinical Medicine, A Basic Course	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SCI	Lec, O	20	9/19/56 3/20/57	11/21/56	I; 10 sessions 2 hr. weekly, Wednesdays	100
Basic Sciences as Applied to Practice of Medicine	University of Maryland School of Medicine Lombard and Greene Sts., Baltimore	B	SCI	Lec	66	10/56	5/57	I; 33 sessions 2 hr. weekly, Wednesdays	50
Basic Sciences and Their Clinical Application	University of Michigan Medical School Dept. of Postgraduate Medicine University Hospital, Ann Arbor, Mich.	S	MT	Lab, Pt. Dem, LC, WR, Lec, Pan, O, AV	Unknown	10/ 1/56	7/ 1/57	9 mo. full time	500
430-A Medical Microbiology	New York University Post-Graduate Medical School 550 First Ave., New York	G	SCI	Lec	10	3/ 5/57	4/ 2/57	I; 5 sessions 2 hr. weekly, Tuesdays	35
Practical Course in Radiological and Isotope Physics	The University of Texas Postgraduate School of Medicine Texas Medical Center, Houston 25, Texas	G	MT	Lab, LC, Lec, AV, EPP	520	7/56 1/57	3/57	65 days	225

CARDIOVASCULAR DISEASE
(See also Electrocardiography, Pediatrics)

26th Annual Symposium on Heart Disease	Los Angeles County Heart Association 316 S. Bonnie Brae St., Los Angeles 57	S	BC	Sem, Lec, Pan, AV	12½	10/10/56	10/11/56	C; 2 days	15
Pathologic Physiology of the Cardiovascular System	University of California School of Medicine Los Angeles 24	G	SCI	Lec, Pan, AV	24	10/ 1/56	12/18/56	I; 12 sessions 2 hr. weekly, Mondays	50
Symposium on Heart Disease	Monterey County Heart Association P.O. Box 1329, Monterey, California	G	BC	Pt. Dem, Sem, Lec	12	12/ 1/56	12/ 2/56	C; 2 days	15
Twenty-Seventh Annual Symposium on Heart Disease	San Francisco Heart Association 604 Mission St., San Francisco 5; course at St. Francis Hotel, San Francisco	B	BC	Pt. Dem, Lec, Pan, O, AV	18	10/ 3/56	10/ 5/56	C; 3 days	25 or 5 per half day session

Symposium on Heart Disease	Santa Barbara County Heart Association 18 La Arcada Court Santa Barbara, California	G	BC	Sem, Lec, Pan, O, AV	8	9/21/56	9/21/56	C; 1 day	20
Symposium on Cardiovascular Disease	University of California Medical Extension San Francisco; course at Odd Fellows Hall, Santa Rosa, California	G	BC	Lec	9	11/15/56	11/15/56	C; 1 day	12.50
Recent Advances in Cardiovascular Disease	Colorado Heart Association 901 E. 17th Ave., Denver; course at University of Colorado Medical School, Denver	G	BC	Lec, Pan, AV	16	11/ 8/56	11/10/56	C; 3 days	15 outside Colorado 5 for Colorado
Fifth Western Cardiology Conference	University of Colorado School of Medicine Office of Post-Graduate Medical Education 4200 E. 9th Ave., Denver; course at Colorado Heart Association, Denver	B	BC	Lec, Pan	24	11/ 8/56	11/10/56	C; 3 days	15
Seminar on Cardiovascular Diseases	Division of Post-Graduate Education College of Medicine University of Florida, Gainesville, Fla.; course at Duval County Medical Center Jacksonville, Fla.	B	BC	Pt. Dem, Sem, Lec, Pan, AV	15	2/57	2/57	C; 2½ days	10
Scientific Sessions— 8th Annual Meeting of the Georgia Heart Assn.	Georgia Heart Association 4 Twelfth St., N. E., Atlanta 9, Georgia; course at General Oglethorpe Hotel Savannah, Ga.	G	BC	Lec, Pan, O, AV	10	9/14/56	9/15/56	C; 2 days	Nil
Third Annual Program on Diseases of the Heart	Chicago Heart Association 69 W. Washington St., Chicago; course at Sheraton Hotel, Chicago	G	BC	Sem, Lec, Pan, O, AV	8	3/20/57	3/20/57	C; 1 day	Nil
Cardiovascular Diseases	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SCI	Pt. Dem, LC, WR, Lec, O	20	9/19/56	11/21/56	I; 10 sessions 2 hr. weekly, Wednesdays	100
The Diagnosis and Treatment of Congenital and Rheumatic Heart Disease in Infants and Children	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SC	Lab, Pt. Dem, LC, Sur, Lec, O, AV	25	11/ 5/56	11/ 9/56	C; 5 days	100
Roentgenology & Electrocardiography in Heart Disease in Infants and Children	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	BC	Lab, Pt. Dem, LC, Lec, O, AV	15	11/12/56	11/14/56	C; 3 days	60
Angiocardiography & Catheterization of Heart & Great Vessels in Diagnosis of Congenital & Acquired Malformations in the Hearts of Infants and Children	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	BC	Lab, Pt. Dem, LC, Sur, Lec, O, AV	15	11/15/56	11/17/56	C; 3 days	60
Postgraduate Course on Arrhythmias	Indiana University School of Medicine 1100 W. Michigan St., Indianapolis	G	BC	Lec, Pan, AV	16	5/20/57	5/21/57	C; 2 days	20
Eleventh Annual Heart Conference	University of Kansas Medical Center 39th and Rainbow Blvd., Kansas City, Ks.	B	BC	Lec, Pan, O, AV	14	2/ 5/57	2/26/57	C; 2 days	Nil
Auscultation of the Heart	University of Kansas Medical Center 39th and Rainbow Blvd., Kansas City, Ks.	B	BC	Pt. Dem, Sem, Lec, Pan, O, AV	12	4/ 8/57	4/ 9/57	C; 2 days	40
In-Residence Training in Cardiovascular Disease	University of Kansas Medical Center 39th and Rainbow Blvd., Kansas City, Ks.	G	MT	Lab, Pt. Dem, LC, WR, Sem, Lec, O, AV	Unknown	2/ 1/57 3/ 1/57	3/ 1/57	1 mo.	300
Cardiovascular Disease	Harvard Medical School Courses for Graduates 25 Shattuck St., Boston; course at Massachusetts General Hospital, Boston	S	SC	Lab, Pt. Dem, LC, WR, Lec, O	Unknown	10/ 1/56	5/31/57	C; 8 mo.	800
Cardiology 2	Harvard Medical School Courses for Graduates 25 Shattuck St., Boston; course at Boston City Hospital	G	SCI	Pt. Dem, Lec	36	11/ 7/56	1/23/57	I; 12 sessions 3 hr. weekly, Wednesdays	75
Cardiology 1	Harvard Medical School Courses for Graduates 25 Shattuck St., Boston; course at Beth Israel Hospital, Boston	G	SC	Lab, Pt. Dem, LC, WR, Lec	Unknown	1/28/57	5/ 4/57	C; 3 mo.	500
Clinical Heart Disease	Harvard Medical School Courses for Graduates 25 Shattuck St., Boston; course at Peter Bent Brigham Hospital, Boston	G	SC	Lab, Pt. Dem, LC, WR, Lec,	120-130	7/ 1/57	7/31/57	C; 27 days	200
Vascular Diseases	Tufts University School of Medicine Postgraduate Division 171 Harrison Ave., Boston	G	BC	Pt. Dem, Lec, Pan, AV	10	11/16/56	11/17/56	C; 2 days	15
Cardiology	Tufts University School of Medicine Postgraduate Division 171 Harrison Ave., Boston	G	BC	Pt. Dem, Lec, AV	14	4/11/57	4/13/57	C; 3 days	20
Diseases of the Heart	University of Michigan Medical School Dept. of Postgraduate Medicine University Hospital, Ann Arbor, Mich.	G	SC	Pt. Dem, Lec, O	30	3/18/57	3/22/57	C; 5 days	50

Key will be found on page 1278.

CARDIOVASCULAR DISEASE—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Cardiovascular Diseases for General Physicians	Continuation Medical Education 1342 Mayo Memorial, University of Minnesota, Minneapolis 14	G	BC	Lec, O	15	2/ 7/57	2/ 9/57	C; 3 days	30
Cardiovascular Seminar	University of Mississippi Medical School Jackson, Miss.	G	BC	Sur, Sem, Lec, AV	20	6/57		C; 3 days	5
Cardiovascular Seminar	University of Mississippi School of Medicine Medical Center, Jackson, Miss.	G	BC	Pt. Dem, Sem, Lec, AV	24	Unknown		C; 3 days	Unknown
Nebraska Heart Association Annual Scientific Session	Nebraska Heart Association 4306 Harney St., Omaha	G	BC	Sem, Pan, O	9	10/ 5/56	10/ 6/56	C; 2 days	Nil
Cardiovascular Teaching Day	Albany Medical College 47 New Scotland Ave., Albany, N. Y.	G	BC	Sem, Lec, Pan	6	2/ 7/57	2/ 7/57	C; 1 day	10
Recent Advances in Therapy of Cardiovascular Diseases	Albany Medical College 47 New Scotland Ave., Albany, N. Y.	G	BC	WR, Sem, Lec, Pan	15	2/ 7/57	2/ 9/57	C; 2½ days	25
Cardiology	Coney Island Hospital Ocean Parkway and Avenue Z Brooklyn, N. Y.	S	SCI	Lab, Sem, Lec, Pan, O, AV	8	9/ 6/56	9/27/56	I; 4 sessions 2 hr. weekly, Thursdays	Unknown
Cardiology	Coney Island Hospital Ocean Parkway and Avenue Z Brooklyn, N. Y.	S	SCI	Lab, Sem, Lec, Pan, O, AV	10	10/ 2/56	12/ 4/56	I; 10 sessions 1 hr. weekly, Tuesdays	Unknown
Clinical Cardiology	Joint Committee on Postgraduate Education 1313 Bedford Ave., Brooklyn 16, N. Y.; course at Beth-El Hospital, Brooklyn, N. Y.	G	SCI	LC, WR, Lec	18	4/57	5/57	I; 12 sessions 1½ hr. twice weekly, Wednesdays, Fridays	30
Surgical Treatment of Heart Disease (PM64)	Montefiore Hospital 210th St. and Bainbridge Ave., New York	G	SCI	Pt. Dem, LC, WR, Sur, Sem, Lec	64½	9/25/56 2/ 5/57	1/29/57	I; 19 sessions 3½ hr. weekly, Tuesdays	150
Cardiology III (PM63)	Montefiore Hospital 210th St. and Bainbridge Ave., New York	G	SCI	Lab, Pt. Dem, LC, WR, AV	64½	9/25/56 2/ 5/57	1/29/57	I; 19 sessions 3½ hr. weekly, Tuesdays	150
Cardiology I (PM60)	Montefiore Hospital 210th St. and Bainbridge Ave., New York	G	SCI	Pt. Dem, WR, Lec, Pan, AV	84	9/27/56 1/31/57	1/24/57	I; 14 sessions 6 hr. weekly, Thursdays	150
Cardiology II (PM62)	Montefiore Hospital 210th St. and Bainbridge Ave., New York	G	SCI	Lab, Pt. Dem, LC, WR, Sem, Lec	63	9/27/56 1/31/57	1/24/57	I; 18 sessions 3½ hr. weekly, Thursdays	150
Clinical Cardiology (PM29)	Mount Sinai Hospital Fifth Ave. & 100th St., New York 29	G	SCI	Pt. Dem, LC, Lec	20	10/16/56	12/18/56	I; 10 sessions 2 hr. weekly, Tuesdays	50
Medicine (PM 31)	Mount Sinai Hospital Fifth Ave. & 100th St., New York 29	G	SC	Pt. Dem, LC, Lec	70	1/28/57	2/ 8/57	C; 10 days	150
Heart Disease and Circulatory Dynamics (PM 48)	Mount Sinai Hospital Fifth Ave. & 100th St., New York 29	G	SCI	LC, Lec	20	2/19/57	4/23/57	I; 10 sessions 2 hr. weekly, Tuesdays	50
Diagnosis & Treatment of Diseases of the Heart	New York Polyclinic Medical School and Hospital 345 W. 50th St., New York	G	SC	Pt. Dem, LC, WR, Sem, Lec, AV	30	Arranged		C; 15 days	75
5414 Cardiac Roentgenology	New York University Post-Graduate Medical School 550 First Ave., New York	G	BC	Pt. Dem, Lec, AV	14	11/ 1/56 2/28/57	11/ 2/56	C; 2 days	35
5415-A Modern Concepts in Etiology, Diagnosis and Treatment of Heart Diseases	New York University Post-Graduate Medical School 550 First Ave., New York	G	SC	Pt. Dem, Lec	35	1/ 7/57	1/11/57	C; 5 days	55
548-A Modern Trends in Diagnosis and Treatment of Congenital Heart Disease	New York University Post-Graduate Medical School 550 First Ave., New York	G	BC	Pt. Dem, Lec, AV	21	2/ 4/57	2/ 6/57	C; 3 days	55
5410-A Cardiology	New York University Post-Graduate Medical School 550 First Ave., New York	G	SCI	Pt. Dem, Lec, AV	21	4/11/57	5/23/57	I; 7 sessions 3 hr. weekly, Thursdays	85
549-A Cardiology	New York University Post-Graduate Medical School 550 First Ave., New York	G	SC	Pt. Dem, AV, Lec	105	5/ 6/57	5/24/57	C; 15 days	250
Cardiovascular Diseases	Rochester General Hospital 501 W. Main St., Rochester, N. Y.	G	SCI	Pt. Dem, LC, WR, Lec, Pan, O	24	10/11/56	1/31/57	I; 12 sessions 2 hr. weekly, Thursdays	15
Seminars on Heart Disease	St. Francis Hospital and Sanatorium Roslyn, New York	G	SCI	Sem, Lec, O	16	10/56	5/57	I; 8 sessions 2 hr. monthly, Tuesdays	Unknown

Postgraduate Course in Cardiology	St. Francis Hospital and Sanatorium Roslyn, New York	G	SC	Pt. Dem, LC, WR, Lec, Pan, O, AV	82	4/15/57	4/27/57	C; 10 days	Unknown
Clinical Cardiology	St. Michael's Hospital 306 High St., Newark, N. J.	G	SCI	Pt. Dem, Lec, Pan, O, AV	35	10/ 3/56	2/20/57	I; 10 sessions 3½ hr. twice monthly, Wednesdays	25
The Prevention and Management of Cardiac Arrest	Cleveland Area Heart Assn. 2073 East 9th St., Cleveland; course at Western Reserve University School of Medicine, Cleveland	B	SCI	Lab, Sur, Lec, AV, EPP	90	9/56	6/57	I; 30 sessions 3 hr. monthly Friday and Saturday	30 to 40
Recent Advances in Cardiovascular Disease	American College of Physicians 4200 Pine St., Philadelphia; course at Mt. Sinai Hospital, New York	S	SC	Lec, Pan	40	10/ 8/56	10/12/56	C; 5 days	30 Members 60 Non-members
Post Graduate Cardiology #1	Hahnemann Medical College and Hospital 230 N. Broad St., Philadelphia	G	SCI	Pt. Dem, Lec, Pan, AV	Unknown	10/56	5/57	I; 2½ hr., Thursdays	150
Post Graduate Cardiology #2	Hahnemann Medical College and Hospital 230 N. Broad St., Philadelphia	G	SCI	Pt. Dem, Lec, Pan, AV		10/56	5/57	I; 2½ hr., Wednesdays	150
Functional and Degenerative Heart Disease	University of Vermont Burlington, Vt.; course at DeGoesbriand Memorial Hospital Burlington, Vt.	S	SC	Lab, Pt. Dem, WR, Lec	15	10/22/56	10/26/56	C; 5 days	Nil
Annual Symposium of Washington State Heart Association	University of Washington School of Medicine Seattle 5	G	BC	Lec, Pan, O	9	9/28/56	9/29/56	C; 1½ days	Unknown
CLINICAL PATHOLOGY									
A series of courses covering the serology of syphilis, management and control of syphilis serology, tests for syphilis using the Treponema Pallidum	Director, Veneral Disease Research Laboratory, Division of Special Health Services, PHS Department of Health, Education, and Welfare, P.O. Box 185, Chamblee, Georgia	Tech	SC	Lec, Lab, AV	Unknown	Monthly begin. Sept.		C; 11 days	Unknown
A series of courses on Bacteriology, Intestinal Parasites, Blood Parasites, Virus and Rickettsial Diseases, Cutaneous Pathogenic Fungi, Subcutaneous and Systemic Fungi, Mycoses, Rabies, Tuberculosis, Malaria, C'Diphtheriae, Salmonella, Typhosa, Laptospirosis, Streptococci	Communicable Disease Center, U.S.P.H.S. P.O. Box 185, Chamblee, Georgia	Princi-pally technical personnel, open to M.D.'s.	O	Lab, Lec, O, AV	40 to 120	By Arrange-ment	By Arrange-ment	Arranged	Nil
Blood Bank Management	Frank E. Bunts Educational Institute 2020 E. 93rd St., Cleveland 6	S	BC	Sem, Lec, Pan, O, AV	12	11/15/56	11/16/56	C; 2 days	15
Laboratory Methods in Blood Banks (PM 32)	Mount Sinai Hospital Fifth Ave. & 100th St., New York 29	G	SCI	Lab	24	4/ 2/57	5/ 7/57	I; 6 sessions 4 hr. weekly, Tuesdays	50
DERMATOLOGY									
Dermatology in General Practice	University of California School of Medicine Los Angeles 24	G	SCI	Pt. Dem, Lec, Pan, AV	12	11/14/56 2/18/57	12/19/56	I; 6 sessions 2 hr. weekly, Wednesdays	30
Dermatology For General Practitioners	University of Colorado School of Medicine 4200 E. 9th Ave., Denver 20	B	BC	Lec, Pan	20	7/57	7/57	C; 3 days	30
Dermatology	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SC	Lab, Pt. Dem, LC	25	9/20/56 3/21/57	11/29/56	I; 10 sessions 2½ hr. weekly, Thursdays	100
Dermatology	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SC	Pt. Dem, LC, WR, Lec, O	60	10/15/56 5/ 6/57	10/27/56	C; 10 days	100
Clinical Dermatology	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SC	Pt. Dem, LC, WR, O	60	Arranged		C; 12 days	75
Clinical Dermatology	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SC	Pt. Dem, LC, WR, O	120	Arranged		C; 24 days	125
Course III Dermatology	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SC	Lab, Pt. Dem, LC, WR, Sur, Sem, Lec, O, EPP	1500	Arranged		C; 12 mo.	1000
Dermatology and Syphilology Postgraduate Course	State University of Iowa Medical School Iowa City	B	BC	Pt. Dem, Lec, Pan, O, AV	6	10/25/56	10/25/56	C; 1 day	10
Surgical Planing For Dermatologists	Tulane University School of Medicine 1430 Tulane Ave., New Orleans	S	BC	Lab, WR, Sem, Lec	24	9/18/56	9/15/56	C; 3 days	100
Dermatology and Syphilology 1	Harvard Medical School Courses for Graduates 25 Shattuck St., Boston; course at Massachusetts General Hospital Boston	S	SC	Lab, Pt. Dem, LC, WR, Sem, Lec	Unknown	10/ 1/56	9/30/57	C; 1 yr.	800

Key will be found on page 1278.

DERMATOLOGY—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Dermatology	Tufts University School of Medicine Postgraduate Division 171 Harrison Ave., Boston	G	BC	Pt. Dem, Lec, Pan, AV	10	11/23/56	11/24/56	C; 2 days	15
Dermatology for General Physicians	Continuation Medical Education 1342 Mayo Memorial, University of Minnesota, Minneapolis 14	G	BC	Lec, O	15	1/ 7/57	1/ 9/57	C; 3 days	30
Diagnosis and Treatment of Common Skin Disorders	Joint Committee on Postgraduate Education 1313 Bedford Ave., Brooklyn 16, N. Y.; course at Beth-El Hospital, Brooklyn, N. Y.	G	SCI	LC, Lec	8	10/56 4/57	12/56	I; 8 sessions 1 hr. weekly, Tuesdays	20
Dermatology (PM 60)	Montefiore Hospital 210th St. and Bainbridge Ave., New York	G	SCI	Pt. Dem, LC, Lec, AV	18	1/ 7/57	3/ 4/57	I; 9 sessions 2 hr. weekly, Mondays	40
521-A Comprehensive Review in Dermatological Histopathology	New York University Post-Graduate Medical School 550 First Ave., New York	S	SC	Lab, Lec	35	9/17/56	9/21/56	C; 5 days	85
524-A Dermatology and Syphilology (Designed for Pediatricians)	New York University Post-Graduate Medical School 550 First Ave., New York	S	SC	Pt. Dem, LC, Lec	35	9/24/56	9/28/56	C; 5 days	85
522-A Seminar in Dermatology and Syphilology (Designed for Non-Dermatologists)	New York University Post-Graduate Medical School 550 First Ave., New York	G	SC	Pt. Dem, LC, Lec, Pan	35	1/14/57	1/18/57	C; 5 days	85
523-A Symposium on Dermatology and Syphilology (For Dermatologists)	New York University Post-Graduate Medical School 550 First Ave., New York	S	SC	Pt. Dem, LC, Lec	35	5/13/57	5/17/57	C; 5 days	100

ELECTROCARDIOGRAPHY
(See also Cardiovascular Disease)

Electrocardiography	University of California School of Medicine Los Angeles 24	G	SCI	Lec, AV	12	11/21/56	12/26/56	I; 6 sessions 2 hr. weekly, Wednesdays	20
835 Home Course in Electrocardiography	University of Southern California, School of Medicine, Postgraduate Division 2025 Zonal Ave., Los Angeles 33	G	HS (C)	EPP	52	7/13/56 10/19/56 1/18/57 4/19/57		1 year	100
834—Practical Electrocardiography	University of Southern California School of Medicine, Postgraduate Division 2025 Zonal Ave., Los Angeles 33	G	BC	Lec, Pan, O	23	2/57	2/57	C; 3 days	65
Medicine, 213, Elementary Electrocardiography	Yale University School of Medicine 333 Cedar St., New Haven, Conn.	G	SCI	Lec, AV	12	10/ 2/56	12/18/56	I; 12 sessions 1 hr. weekly, Tuesdays	50
Clinical Electrocardiography	Colorado Heart Association 901 E. 17th Ave., Denver; course at Veterans Administration Hospital Denver	G	BC	Lec, Pan, AV	18	11/ 5/56	11/ 7/56	C; 3 days	15 outside Colorado 5 Colorado
Fundamentals of Electrocardiography	University of Colorado Medical Center 4200 E. 9th Ave., Denver 20	G	SCI	Lec	24	10/56	12/56	I; 12 sessions 2 hr. weekly	10
Clinical Electrocardiography	University of Colorado Medical Center 4200 E. 9th Ave., Denver 20	B	BC	Pt. Dem, Lec, Pan	24	11/ 5/56	11/ 7/56	C; 3 days	15
Elementary Clinical Electrocardiography	Lawrence and Memorial Associated Hospital Montauk Ave., New London, Conn.	G	SCI	Lec, O, AV	34	9/15/56	2/57	I; 17 sessions 2 hr. weekly, Tuesdays	70
Basic Electrocardiography	The Memorial Hospital 1501 Van Buren St., Wilmington, Del.	G	SCI	Lec	12	9/56	12/56	I; 12 sessions 1 hr. weekly, Tuesdays	Unknown
Advances in Electrocardiography	Mount Sinai Hospital of Greater Miami 4300 Alton Rd., Miami Beach, Fla.	S	SC	Lab, Pt. Dem, Lec, Pan, O, AV	48	Unknown		C; 6 days	30
Advance Course in Electrocardiography	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SC	Lab, Lec, O	40	9/17/56	9/22/56	C; 6 days	150
Electrocardiography & Heart Disease	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SCI	Lab, Pt. Dem, LC, Lec, O, EPP	70	9/26/56 2/ 6/57	11/28/56	I; 10 sessions 7 hr. weekly, Wednesdays	150
Electrocardiography & Heart Disease	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SC	Lab, Pt. Dem, Lec, O, EPP	76	10/ 8/56 3/11/57 7/ 8/57	10/20/56	C; 2 wk.	150
Advanced Electrocardiography—Complex Arrhythmias	Michael Reese Hospital 29th St. and Ellis Ave., Chicago 16	S	SC	Sem, Lec, Pan, O, AV, EPP	35	12/ 3/56	12/ 7/56	C; 5 days	100
Electrocardiographic Interpretation	Michael Reese Hospital 29th St. and Ellis Ave., Chicago 16	B	SCI	Lec, Pan	24	2/ 6/57	4/24/57	I; 12 sessions 2 hr. weekly, Wednesdays	50

Electrocardiographic Interpretation	Michael Reese Hospital 29th St. and Ellis Ave., Chicago 16	B	SC	Sem, Lec, Pan, AV, EPP	80	8/19/57	8/30/57	C; 10 days	150
Clinical Electrocardiography	Indianapolis General Hospital 10th and Locke St., Indianapolis	G	SCI	Lec, O, AV	24	9/ 6/56	11/29/56	I; 12 sessions 2 hr. weekly, Thursdays	15
Postgraduate Course in Basic Electrocardiography	Indiana University School of Medicine 1100 W. Michigan St., Indianapolis	G	BC	Lec, O, AV	23	3/ 4/57	3/ 6/57	C; 3 days	30
Interpretation of Electrocardiograms—Course I	University of Kansas Medical Center 39th and Rainbow Blvd., Kansas City, Ks.	B	HS(C)			10/19/56 4/19/57	4/19/57	6 mo.	18
Interpretation of Electrocardiograms—Course II	University of Kansas Medical Center 39th and Rainbow Blvd., Kansas City, Ks.	B	HS(C)			11/22/56 5/16/57	5/23/57	6 mo.	17
Clinical Application of Electrocardiography	University of Kansas Medical Center 39th and Rainbow Blvd., Kansas City, Ks.	B	BC	Lec, Pan, O, AV	30	3/18/57	3/21/57	C; 4 days	50
Electrocardiography	Tulane University School of Medicine 1430 Tulane Ave., New Orleans	G	SC	Lab, Sem, Lec, EPP	84	11/26/56	12/ 8/56	C; 10 days	100
Practical Electrocardiography, Course B	Beth Israel Hospital 330 Brookline Ave., Boston	G	SCI	Lec, O, AV, EPP	30	10/ 3/56	12/ 5/56	I; 10 sessions, 3 hr. weekly, Wednesdays	100
Practical Electrocardiography, Course A	Beth Israel Hospital 330 Brookline Ave., Boston	G	SC	Lec, O, AV, EPP	30	11/ 5/56	11/ 9/56	C; 5 days	100
EKG Clinics, Course B	Beth Israel Hospital 330 Brookline Ave., Boston	G	SCI	Lec, O, AV, EPP	30	3/ 6/57	5/ 8/57	I; 10 sessions 3 hr. weekly, Wednesdays	100
EKG Clinics, Course C	Beth Israel Hospital 330 Brookline Ave., Boston	G	SC	Lec, O, AV, EPP	30	4/23/57	4/27/57	C; 5 days	100
Electrocardiography I	Tufts University School of Medicine Post-Graduate Division 171 Harrison Ave., Boston	G	SC	Pt, Dem, Lec, Pan, AV	25	12/17/56	12/21/56	C; 5 days	40
Electrocardiography II	Tufts University School of Medicine Post-Graduate Division 171 Harrison Ave., Boston	G	BC	Pt. Dem, Lec, Pan	18	5/13/57	5/15/57	C; 3 days	25
Electrocardiographic Diagnosis	University of Michigan Medical School Department of Postgraduate Medicine University Hospital, Ann Arbor, Mich.	G	SC	Pt, Dem, Lec, Pan, O, AV	34	3/25/57	3/30/57	C; 5½ days	75
Introduction to Electrocardiography	Continuation Medical Education 1342 Mayo Memorial, University of Minnesota, Minneapolis 14	G	SC	Lec, O, EPP	30	5/ 6/57	5/10/57	C; 5 days	50
Electrocardiography	University of Nebraska College of Medicine 42nd and Dewey, Omaha	G	BC	Lab, Lec, Pan, O, AV	24	10/ 1/56	10/ 4/56	C; 4 days	40
Principles of Electrocardiography	Albany Medical College 47 New Scotland Ave., Albany, N. Y.	G	SCI	Lec	12	9/13/56	10/18/56	I; 6 sessions 2 hr. weekly, Thursdays	60
Advanced Course in Interpretation of Electrocardiograms	Albany Medical College 47 New Scotland Ave., Albany, N. Y.	G	SCI	Lec	12	10/25/56	12/ 6/56	I; 6 sessions 2 hr. weekly, Thursdays	60
Clinical Correlation of Electrocardiograms with Disease Processes (Hospitalized Patients)	Albany Medical College 47 New Scotland Ave., Albany, N. Y.	G	SCI	Pt. Dem, EPP	24	Arranged		I; 12 sessions 2 hr. each	60
Basic Electrocardiography	Joint Committee on Post-Graduate Education 1313 Bedford Ave., Brooklyn 16, N. Y.; course at Beth-El Hospital, Brooklyn, N. Y.	G	SCI	Lec	12	10/56	11/56	I; 12 sessions 1 hr. twice weekly, Mondays, Fridays	20
Interpretation of the Electrocardiogram	Joint Committee on Post-Graduate Education 1313 Bedford Ave., Brooklyn 16, N. Y.; course at Coney Island Hospital Brooklyn, N. Y.	G	SCI	Lec, AV	100	10/56 4/57	12/56	I; 10 sessions 10 hr. weekly, Tuesdays	20
Introduction to Electrocardiography	University of Buffalo School of Medicine 3435 Main St., Buffalo, N. Y.	G	BCI	Sem, Lec, O, AV	12	9/20/56	10/11/56	I; 4 sessions 3 hr. weekly, Thursdays	25
Electrocardiographic Interpretation	University of Buffalo School of Medicine 3435 Main St., Buffalo, N. Y.	G	SCI	Lab, Lec, O, AV, EPP	24	10/18/56	12/13/56	I; 8 sessions 3 hr. weekly, Thursdays	50
Electrocardiography	Community Hospital at Glen Cove Walnut Ave., Glen Cove, N. Y.	G	SCI	Sem, Lec, O	20	1/ 6/57	3/10/57	I; 10 sessions 2 hr. weekly, Sundays	50
Medicine (PM 63A)	Montefiore Hospital 210th St. and Bainbridge Ave., New York	G	SCI	Sem, AV	38	9/25/56 2/ 5/57	1/29/57	I; 19 sessions 2 hr. weekly, Tuesdays	100
Elementary Electrocardiography (PM41)	Mount Sinai Hospital Fifth Ave. and 100th St., New York 29	G	SC	LC, Lec	30	10/15/56 1/14/57	10/19/56	C; 5 days	75

Key will be found on page 1278.

ELECTROCARDIOGRAPHY—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Advanced Electrocardiography (PM42)	Mount Sinai Hospital Fifth Ave. and 100th St., New York 29	G	SC	LC, Lec	30	10/22/56 1/14/57	10/20/56	C; 5 days	75
Spatial Vectorcardiography (PM43)	Mount Sinai Hospital Fifth Ave. and 100th St., New York 29	G	SC	LC, Lec	28	12/ 3/56	12/ 8/56	C; 6 days	75
Electrocardiographic Interpretation	New York Polyclinic Medical School and Hospital 345 W. 50th St., New York	G	SC	Pt. Dem, LC, WR, Sem, Lec, AV	20	Arranged		C; 10 days	75
Practical Electrocardiography	New York Polyclinic Medical School and Hospital 345 W. 50th St., New York	G	SC	Pt. Dem, LC, Sem, Lec, AV	10	Arranged		C; 5 days	100
5416-A Fundamentals of Clinical Electrocardiographic Interpretation	New York University Post-Graduate Medical School 550 First Ave., New York	G	SCI	Lec	32	11/ 7/56	3/ 6/57	I; 16 sessions 2 hr. weekly, Wednesdays	50
5412-A Electrocardiography	New York University Post-Graduate Medical School 550 First Ave., New York	G	SC	Pt. Dem, Lec, AV	35	11/12/56 3/18/57	11/16/56	C; 5 days	85
5411-A Clinical Electrocardiography	New York University Post-Graduate Medical School 550 First Ave., New York	G	SCI	Pt. Dem, Lec, AV	10½	4/11/57	5/23/57	I; 7 sessions 1½ hr. weekly, Thursdays	50
Basic Electrocardiography	State University of New York Upstate Medical Center 766 Irving Ave., Syracuse, N. Y.	G	SCI	Lec, AV	14	10/11/56	11/22/56	I; 7 sessions 2 hr. weekly, Thursdays	15
Electrocardiographic Review, Primary in June Advanced in January	Duke University School of Medicine Durham, N. C.	G	BC	Lab, Pt. Dem, LC, WR, Pan	18	6/57 1/57	6/57	C; 3 days	100 Paid by N.C. Health Department
Electrocardiography and Other Graphic Methods in Cardiovascular Diagnosis	Graduate School of Medicine University of Pennsylvania, Philadelphia	B	SCI	Lec, Pan	30	1/ 9/57	3/13/57	I; 10 sessions 3 hr. weekly, Wednesdays	75
Electrocardiology	The University of Texas Postgraduate School of Medicine Texas Medical Center, Houston 25, Texas	B	SC	Lab, Pt. Dem, Lec, TV	30	12/ 3/56	12/ 7/56	C; 5 days	45
Symposium on Electrolytes and Circulation	DeGoesbriand Memorial Hospital Burlington, Vt.	S	BC	Pt. Dem, Sem, Lec, Pan	22	9/ 8/56	9/10/56	C; 3 days	10

ELECTROENCEPHALOGRAPHY

Electroencephalography	Program Director, 10th Conn. Post-Graduate Seminar in Psychiatry and Neurology Connecticut State Hospital, Middletown, Conn.; course at Yale University School of Medicine 333 Cedar St., New Haven, Conn.	S	BCI	Lab, Lec, O, AV	7½	10/22/56	11/ 5/56	I; 3 sessions 2½ hr. weekly, Mondays	Nil
Clinical Electroencephalography (PM33)	Mount Sinai Hospital Fifth Ave. & 100th St., New York 29	S	SCI	Lab, LC	45	9/27/56	1/10/57	I; 15 sessions 3 hr. weekly, Thursdays	100
642-A Electroencephalography	New York University Post-Graduate Medical School 550 First Ave., New York	G	SC	Lab	160	Arranged		C; 8 weeks	300
Electroencephalography	Graduate School of Medicine University of Pennsylvania, Philadelphia	G	SC	Lab, Lec, O		By special arrangement		C; 2 wk. specially arranged	200

ENDOCRINOLOGY
(See also Internal Medicine)

Basic Aspects of Endocrinology and Metabolism	University of California School of Medicine Los Angeles 24	G	SCI	Lec, Pan, AV	24	1/14/57	4/ 1/57	I; 12 sessions 2 hr. weekly, Mondays	50
Metabolism and Endocrinology	University of California Medical Center Second and Parnassus Aves., San Francisco	G	BC	Lec, AV	14	10/16/56	10/17/56	C; 2 days	40
Live Clinics and Panel Discussions in Clinical Endocrinology—840	University of Southern California School of Medicine Post-Graduate Division 2025 Zonal Ave., Los Angeles 33; course at Los Angeles County Hospital	S	BC	Pt. Dem, LC, WR, Lec, Pan, O	20	11/29/56	12/ 1/56	C; 3 days	65
Endocrinology	University of Colorado School of Medicine 4200 E. 9th Ave., Denver 20	G	SCI	Lec	Unknown	1/57	3/57	I; once weekly, 12 weeks	10
Metabolic Endocrinology	Joint Committee on Post-Graduate Education 1313 Bedford Ave., Brooklyn, N. Y.; course at Maimonides Hospital, Brooklyn, N. Y.	G	SCI	Pt. Dem, Lec, O	15	10/56	12/56	I; 10 sessions 1½ hr. weekly, Tuesdays	10

Medical and Gynecologic Endocrinology	Joint Committee on Post-Graduate Education 1313 Bedford Ave., Brooklyn 16, N. Y.; course at Jewish Hospital, Brooklyn, N. Y.	G	SCI	LC, Lec	10	4/57	6/57	I; 10 sessions 1 hr. weekly, Fridays	20
Endocrine Disease	University of Buffalo School of Medicine 3435 Main St., Buffalo, N. Y.	G	BC	Pt. Dem, LC, WR, Sem, Lec, Pan, O, AV	14	1/16/57	1/17/57	C; 2 days	30
5423-A Endocrinology	New York University Post-Graduate Medical School 550 First Ave., New York	G	SCI	Pt. Dem, Lec	22	4/ 8/57	5/31/57	I; 22 sessions 1 hr. 3 times weekly, Mondays, Thursdays, Fridays	45
The Eighth Postgraduate Assembly of the Endocrine Society	The University of Texas Post-Graduate School of Medicine Texas Medical Center, Houston 25, Texas	S	SC	Pt. Dem, Lec, Pan	33	10/22/56	10/27/56	C; 6 days	100
ENDOSCOPY									
Gastroscopy and Gastroenterology	Cook County Graduate School of Medicine 707 S. Wood Street, Chicago 12	G	SC	Lab, Pt. Dem, LC, Lec, O, AV, EPP	40	9/10/56 11/ 5/56 3/18/57	9/22/56	C; 12 days	200
Cystoscopy	Cook County Graduate School of Medicine 707 S. Wood Street, Chicago 12	G	SC	Lab, Pt. Dem, LC, Lec, O, EPP	30	9/10/56 9/24/56 10/22/56 11/ 5/56 11/26/56 12/10/56 1/ 7/57 1/21/57 2/ 4/57 2/18/57 3/ 4/57 3/18/57 4/15/57 4/29/57 5/13/57 6/ 3/57 6/17/57 7/ 8/57 7/22/57 8/ 5/57	9/21/56	C; 10 days	150
Clinical Bronchoscopy	Cook County Graduate School of Medicine 707 S. Wood Street, Chicago 12	G	SC	Lab, Pt. Dem, LC, Lec, O, EPP	15	9/17/56 10/15/56 11/19/56 12/17/56 1/21/57 2/18/57 3/18/57 4/15/57 5/20/57 6/17/57	9/21/56	C; 5 days	100
Bronchoesophagology	University of Illinois College of Medicine 1853 W. Polk St., Chicago 12	S	SC	Lab, Pt. Dem, LC, WR, Sem, Lec, Pan, O, AV, EPP	84	11/ 5/56 spring/57	11/17/56	C; 12 days	150
Bronchoscopy	New York Polyclinic Medical School and Hospital 345 W. 50th St., New York	G	SCI	Sur, Lec, Cad, AV	8	Arranged		I; 8 sessions 1 hr. weekly, Wednesdays	150
5427-A Gastroscopy and Flexible Tube Esophogoscopy	New York University Post-Graduate Medical School 550 First Ave., New York	G	SCI	Pt. Dem, LC, EPP	36	9/10/56 12/56 3/ 4/57	12/10/56	I; 36 sessions 1 hr. 3 times weekly, Mondays, Wednesdays, Fridays	300
595-A Endoscopy: Bronchoesophagology and Laryngology	New York University Post-Graduate Medical School 550 First Ave., New York	S	SC	Lab, Sem, Cad, Lec	35	2/25/57	3/ 1/57	C; 5 days	100
Bronchoesophagology	Temple University School of Medicine and Hospital 3400 N. Broad St., Philadelphia 40	B	SC	Lab, Pt. Dem, LC, Sem, Lec, Pan, O, AV, EPP	80	9/17/56 Dates to be announced (given 2 or 3 times a year according to demand)	9/28/56	C; 11 days	250
FORENSIC MEDICINE									
Forensic Pathology	Department of the Army, Office of the Surgeon General, Education and Training Division Washington 25, D. C.; course at Walter Reed Army Medical Center Washington 12, D. C.	S	SC	Lab, Lec	40	11/ 5/56	11/ 9/56	C; 5 days	Nil

Key will be found on page 1278.

FORENSIC MEDICINE—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
657-A Radiological Aspects of Medico-Legal Medicine	New York University Post-Graduate Medical School 550 First Ave., New York	S	SCI	Lec	18	9/25/56	12/18/56	I; 12 sessions 1½ hr. weekly, Tuesdays	35
533-A Toxicology	New York University Post-Graduate Medical School 550 First Ave., New York	G	SC	Lab, Pt. Dem, Lec, Pan	Vary	Unknown		C.	100 per mo.
Investigation of Homicide	University of Cincinnati College of Medicine Cincinnati; course at Institute of Industrial Health Cincinnati	S	SC	Sem, Lec, Pan, AV	42	11/12/56	11/17/56	C; 6 days	35

FRACTURES

Treatment of Fractures	Department of the Army, Office of the Surgeon General, Education and Training Division Washington 25, D. C.; course at Brooke Army Medical Center San Antonio, Tex.	B	BC	Sem, Lec	24	3/13/57	3/15/57	C; 3 days	Nil
Trauma	American College of Surgeons 40 E. Erie St., Chicago 11; Clinical Congress at San Francisco	S	BC	Sem, Lec, Pan, O, AV	12	10/ 8/56	10/11/56	C; 4 days	5
Basic Principles, Diagnosis and Treatment of Fractures	American Fracture Assn. 610 Griesheim Bldg., Bloomington, Ill.; course at Cook County Hospital and Drake Hotel, Chicago	G	BC	Unknown	12	11/28/56	11/29/56	C; 2 days	5
Fracture Treatment	American Fracture Assoc. 610 Griesheim Bldg., Bloomington, Ill.	G	BC	Sem, Lec, AV	20	11/29/56	12/ 1/56	C; 2½ days	15
Fractures	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SCI	Lab, Pt. Dem, LC, WR, Sur, Lec, O	60	9/19/56 3/20/57	11/21/56	I; 10 sessions 6 hr. weekly, Wednesdays	125
Course III Fractures and Traumatic Surgery	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SC	Lab, Pt. Dem, LC, WR, Sur, AV	80	10/15/56 11/26/56 3/11/57 6/17/57	10/27/56	C; 12 days	150
Course II Clinical Fractures	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SC	Pt. Dem, LC, WR, Sur, O	20	Arranged		C; 5 days	50
Postgraduate Course on Fractures	Indiana University School of Medicine 1100 W. Michigan St., Indianapolis	G	BC	Lec, Pan, O, AV	7	3/13/57	3/13/57	C; 1 day	10
Treatment of Fractures and Other Traumatic Conditions	Harvard Medical School Courses for Graduates, 25 Shattuck St. Boston; course at Massachusetts General Hospital Boston	G	SC	Pt. Dem, LC, Lec, Pan, AV	46	10/22/56	10/27/56	C; 6 days	150
Fractures for General Physicians	Continuation Medical Education 1342 Mayo Memorial University of Minnesota, Minneapolis 14	G	BC	Pt. Dem, Lec, O	15	11/19/56	11/21/56	C; 3 days	30
608-A Diagnosis and Treatment of Fractures and Dislocations	New York University Post-Graduate Medical School 550 First Ave., New York	G	SC	Pt. Dem, LC, WR, Lec	70	1/28/57	2/ 9/57	C; 12 days	125

GASTROENTEROLOGY
(See also Proctology and Radiology)

Gastrointestinal Physiology and Disease	University of Colorado School of Medicine 4200 E. 9th Ave., Denver 20	B	SCI	Lec	Unknown	4/57	6/57	I; Once weekly, 12 weeks	10
Gastroenterology	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SC	Lab, Pt. Dem, LC, WR, Sem, Lec, O, EPP	60	10/22/56 5/13/57	11/ 3/56	C; 12 days	100
Postgraduate Course in Upper Gastrointestinal Bleeding	Indiana University School of Medicine 1100 W. Michigan St., Indianapolis	G	BC	Lec, Pan, O, AV	7	3/14/57	3/14/57	C; 1 day	10
Gastroenterology Conference	State University of Iowa Iowa City	B	BC	Pt. Dem, Lec, Pan, O, AV	6	1/16/57	1/16/57	C; 1 day	10
Gastroenterology	University of Kansas Medical Center 39th and Rainbow Blvd., Kansas City, Ks.	B	BC	Pt. Dem, LC, Sem, Pan, O, AV	14	1/16/57	1/17/57	C; 2 days	30
In-Residence Training in Gastroenterology	University of Kansas Medical Center 39th and Rainbow Blvd., Kansas City, Ks.	G	MT	Lab, Pt. Dem, LC, WR, Lec	Unknown	Arranged		1 mo.	50 to 100
Recent Advances in Gastroenterology	American College of Physicians 4200 Pine St., Philadelphia 4; course at Boston University School of Medicine, Boston	S	SC	Lec, Pan	40	4/ 1/57	4/ 5/57	C; 5 days	30 members 60 non-members

Gastroenterology	Tufts University School of Medicine Post-Graduate Division 171 Harrison Ave., Boston	G	BC	Pt. Dem, Lec, Pan, AV	14	10/18/56	10/30/56	C; 3 days	20
Diseases of Gastrointestinal Tract	University of Michigan Medical School Dept. of Postgraduate Medicine University Hospital, Ann Arbor, Mich.	G	SC	Pt. Dem, LC, Lec, Pan, O, AV	30	4/15/57	4/19/57	C; 5 days	50
Fifth Annual Spring Postgraduate Assembly	University of Nebraska College of Medicine 42nd and Dewey, Omaha	G	BC	Pt. Dem, Sem, Lec, Pan, O, AV	18	4/ 3/57	4/ 5/57	C; 3 days	30
Postgraduate Gastroenterology	American College of Gastroenterology 33 W. 60th St., New York; course at Hotel Roosevelt, New York	B	BC	LC, Lec	18	10/18/56	10/21/56	C; 3 days	35 for members 50 for nonmembers
Medicine (PM 70)—Gastroenterology	Montefiore Hospital 210th St. & Bainbridge Ave., New York	G	SCI	WR, Sem, Lec, AV	52½	9/11/56	12/18/56	I; 15 sessions 3½ hr. weekly, Tuesdays	75
Medicine (PM 73)	Montefiore Hospital 210th St. & Bainbridge Ave., New York 67	G	SCI	WR, Sem, AV	56	1/15/57	4/30/57	I; 16 sessions 3½ hr. weekly, Tuesdays	75
Gastroenterology (PM 45)	Mount Sinai Hospital Fifth Ave. & 100th St., New York 29	G	SC	LC, Lec	30	4/ 8/57	4/12/57	C; 5 days	75
Clinical Gastroenterology	New York Polyclinic Medical School and Hospital 345 W. 50th St., New York	G	SC	Lab, Pt. Dem, LC, WR, Lec	60	10/ 1/56 4/ 1/57	10/31/56	C; 24 days	75
5425-A Clinical Gastroenterology	New York University Post-Graduate Medical School 550 First Avenue, New York	G	SC	Lab, Lec	35	10/29/56	11/ 2/56	C; 5 days	75
5426-A Gastroenterology	New York University Post-Gradute Medical School 550 First Ave., New York	G	SCI	Pt. Dem, Lec	24	4/10/57	5/29/57	I; 8 sessions 3 hr. weekly, Wednesdays	40
Latest Advances in Gastroenterology	American College of Physicians 4200 Pine St., Philadelphia 4; course at University of Pennsylvania Graduate School of Medicine Philadelphia	S	SC	Lec, Pan	40	12/ 3/56	12/ 7/56	C; 5 days	30 A.C.P. members 40 nonmembers
Diseases of the Lower Bowel and Rectum—Part I	The University of Texas Postgraduate School of Medicine Texas Medical Center, Houston 25, Texas	G	SCI	Lec, AV	12	12/56		I; 6 sessions 2 hr. twice weekly	15
Diseases of the Lower Bowel and Rectum—Part II	The University of Texas Postgraduate School of Medicine Texas Medical Center, Houston 25, Texas	G	BCI	WR, Sur	8	12/56		I; 3 sessions 2½ hr. weekly, Tuesdays	10
				GENERAL PRACTICE **(See also all other categories)**					
Alabama Academy of General Practice Seminar	Medical College of Alabama 1919 S. 7th Ave., Birmingham, Ala.	G	BC	Pt. Dem, LC, Sem, Pan	12	8/ 3/56 1/ 3/57	8/ 4/56	C; 2 days	Nil
5th Annual Circuit Postgraduate Lectures and Conferences for Sacramento Valley	Committee on PG Activities California Medical Assn. 417 S. Hill St., Rm. 938, Los Angeles; course at various hotels in Dunsmuir, Chico, Marysville and Auburn, Calif.	B	CC	Sem, Lec	16 in each city	Fall/56		8 days	25
5th Annual Circuit Postgraduate Lectures and Conferences for North Coast Counties	Committee on PG Activities California Medical Assn. 417 S. Hill St., Rm. 938, Los Angeles; course at hospitals in Eureka, Ukiah, Woodland and Napa, Calif.	B	CC	Sem, Lec	16 in each city	Fall/56 Spring/57		8 days	25
7th Annual Medical & Surgical Institute	Committee of PG Activities California Medical Assn. 417 S. Hill St., Rm. 938, Los Angeles; course at Veterans Memorial Auditorium, Santa Rosa, Calif.; Laguna Hotel, Laguna Beach, Calif.; Golden Bough Theater and La Playa Hotel, Carmel, Calif.; Hacienda Hotel, Fresno, Calif.; Cal-Neva Hotel, Lake Tahoe, Calif.	B	CC	Sem, Lec, Pan	14	Spring/57		C; 2 days	10
Medical-Surgical Lecture Series	University of California School of Medicine Los Angeles 24	G	SCI	Lec, Pan, AV	40	9/12/56	6/12/57	I; 20 sessions 2 hr. weekly, Wednesdays	50
Medical Photography	University of California School of Medicine Los Angeles 24	G	SCI	Lab, Lec	12	3/11/57	4/15/57	I; 6 sessions 2 hr. weekly, Mondays	30
Postgraduate Course for Physicians	Contra Costa County Hospital Martinez, Calif.	G	R	Lec	16	2/ 4/57	4/ 8/57	I; 8 sessions 2 hr. weekly, Mondays	10

Key will be found on page 1278.

GENERAL PRACTICE—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Annual Postgraduate Assembly	San Diego County General Hospital North End of Front St., San Diego 3, Calif.	S	BC	Lec, Pan, O, AV	44	9/19/56	9/20/56	C; 2 days	Nil
Medicine for General Practitioners	University of California Medical Extension Second and Parnassus Aves., San Francisco	G	SCI	Lec	24	9/56	12/56	I; 12 sessions 2 hr. weekly, Tuesdays	50
Saint John's Hospital Postgraduate Assembly	Saint John's Hospital 1328 22nd St., Santa Monica, Calif.	G	BCI	Pt. Dem, WR, Sem, Lec, Pan, O	28	9/10/56	9/12/56	I; 8 hrs daily for 3 days, 2 hr. for 2 nights	10
Glockner-Penrose Graduate Education Clinics	Glockner-Penrose Hospital 2200 N. Tejon St., Colorado Springs, Colo.	G	BC	Pt. Dem, LC, Lec	4	9/ 6/56	9/ 6/56	C; 1 day	10
Annual Summer Clinics	Children's Hospital 1056 E. 19th Ave., Denver 18	G	BC	Pt. Dem, LC, Sem, Lec, Pan, O, AV	18	6/19/57	6/21/57	C; 3 days	25
General Practice Review	University of Colorado School of Medicine 4200 E. 9th Ave., Denver 20	G	SC	Pt. Dem, Lec, Pan, O, AV	45	1/14/57	1/19/57	C; 6 days	60
Eighth Annual Colorado Intern-Resident Clinics	University of Colorado Medical Center 4200 E. 9th Ave., Denver 20	B	BC	Pt. Dem, LC, Lec, Pan	16	6/57	6/57	C; 2 days	Nil
Colorado Medical Alumni Clinics	University of Colorado School of Medicine 4200 E. 9th Ave., Denver 20	B	BC	Lec, Pan	8	6/57	6/57	C; 1 day	Nil
Management of Mass Casualties	Department of the Army Office of the Surgeon General, Education and Training Division, Washington 25, D. C.; course at Walter Reed Army Medical Center Washington, D. C.	G	SC	Sem, Lec, Pan, O, AV	44	10/29/56 2/ 4/57 6/17/57	11/ 3/56	C; 5½ days	Nil
25th Annual Graduate Short Course	College of Medicine University of Florida Gainesville, Florida	G	SC	Sem, Lec, Pan, AV	30	6/24/57	6/28/57	C; 5 days	10
Medicine for Today	Illinois Academy of General Practice 14 E. Jackson Blvd., Chicago; course at Edwardsville Sanitarium, Edwardsville, Ill.; St. Elizabeth Hospital, Belleville, Ill.; Burnham City Hospital Nurses Home, Champaign, Ill.; Swedish Covenant Hospital, Chicago; Illini Union Bldg., Chicago; Englewood Hospital, Chicago; St. James Hospital, Chicago Heights, Ill.; St. Elizabeth Hospital, Danville, Ill.; St. John's Hospital, Springfield, Ill.; St. Anthony Hospital, Rockford, Ill.; Wabash General Hospital, Mt. Carmel, Ill.; Public Hospital, Moline, Ill.; Sanatarium Hospital, Hinsdale, Ill.; St. Joseph's Hospital, Joliet, Ill.; Elks Club, Herrin, Ill.; Community Hospital, Geneva, Ill.; Memorial Hospital, Elmhurst, Ill.; St. Anthony Hospital, Effingham, Ill.	G	CC	Lec, Pan, O, AV	12	Wk. of 9/24/56 Wk. of 4/ 1/57	11/ 2/56	2 hr. each wk. for 6 wk.	40
Refresher Course for the General Physician	State University of Iowa Medical School Iowa City	G	BC	Pt. Dem, Lec, Pan, O, AV	24	2/20/57	2/23/57	C; 4 days	35
Review of General Medicine, General Surgery	University of Kansas Medical Center 39th and Rainbow Blvd., Kansas City, Ks.	G	SCI	Pt. Dem, LC, Lec, Pan, O, AV	28	10/18/56	4/18/57	I; 7 sessions 4 hr. monthly, Thursdays	30 non-academy; 10 academy members
General Medicine and General Surgery	University of Kansas Medical Center 39th and Rainbow Blvd., Kansas City, Ks.; course at Concordia, Ks. Colby, Ks. Garden City, Ks. Great Bend, Ks. Manhattan, Ks. Hutchinson, Ks. Arkansas City, Ks. Emporia, Ks.	B	CC	Pt. Dem, LC, Lec, Pan, O, AV	33	12/ 4/56 12/ 5/56 12/ 6/56 12/ 7/56 12/ 4/56 12/ 5/56 12/ 6/56 12/ 7/56	5/ 3/57	1 day per mo.	30
Dentistry and Medicine	University of Kansas City School of Dentistry at University of Kansas Medical Center 39th and Rainbow Blvd., Kansas City, Ks.	G	BC	LC, Lec, Pan, O, AV	7	3/ 6/57	3/ 6/57	C; 1 day	25
Recent Advances in Medicine and General Practice	Post-Graduate Institute, Doctors Hospital 2724 N. Charles St., Baltimore	G	SCI	Pan	10	10/30/56	11/30/56	I; 6 sessions 2 hr. Tuesdays, 1½ hr. Fridays	3
Special Problems in General Practice	Post-Graduate Institute, Doctors Hospital 2724 N. Charles St., Baltimore	G	SCI	Pan	10	4/30/57	6/ 7/57	I; 6 sessions 2 hr. Tuesdays, 1½ hr. Fridays	3

General Medicine	Post-Graduate Medical Institute 30 Fenway, Boston; course at St. Josephs Hospital, Providence, R. I.	G	SCI	Pt. Dem, Pan, O, AV	16	9/26/56	11/21/56	I; 8 sessions 2 hr. weekly, Wednesdays	32
General Medicine	Post-Graduate Medical Institute 30 Fenway, Boston; course at Norfolk County Hospital, Braintree, Mass.	G	SCI	Pt. Dem, Pan, O, AV	24	10/ 3/56	12/26/56	I; 12 sessions 2 hr. weekly, Wednesdays	48
General Medicine	Post-Graduate Medical Institute 30 Fenway, Boston; course at St. Luke's Hospital, New Bedford, Mass.	G	SCI	Pt. Dem, Pan, O, AV	24	10/ 3/56	12/26/56	I; 12 sessions 2 hr. weekly, Wednesdays	48
General Medicine	Post-Graduate Medical Institute 30 Fenway, Boston; course at St. Johns Hospital, St. Joseph Hospital, and Lowell General Hospital, Lowell, Mass.	G	SCI	Pt. Dem, Pan, O, AV	12	10/10/56	11/21/56	I; 6 sessions 2 hr. weekly, Wednesdays	24
Modern Concepts of Diagnosis and Therapy of Everyday Practice	Post-Graduate Medical Institute 30 Fenway, Boston; course at Lemuel Shattuck Hospital, Jamaica Plain, Mass.	G	SCI	Pt. Dem, Pan, O, AV	50	10/15/56	5/ 2/57	I; 25 sessions 2 hr. weekly, Wednesdays	100
Modern Concepts of Diagnosis and Therapy of Everyday Practice	Post-Graduate Medical Institute 30 Fenway, Boston; course at Holyoke Soldiers Home, Holyoke, Mass.	G	SCI	Pt. Dem, Pan, O, AV	20	10/25/56	12/14/56	I; 10 sessions 2 hr. weekly, Fridays	40
General Medicine	Post-Graduate Medical Institute 30 Fenway, Boston; course at St. Luke's Hospital, Pittsfield, Mass.	G	SCI	Pt. Dem, Pan, O, AV	20	10/25/56	12/14/56	I; 10 sessions 2 hr. weekly, Wednesdays	40
General Medicine	Post-Graduate Medical Institute 30 Fenway, Boston; course at Salem Hospital, Salem, Mass., and Lynn Hospital, Lynn, Mass.	G	SCI	Pt. Dem, Pan, O, AV	24	1/ 2/57	3/20/57	I; 12 sessions 2 hr. weekly, Wednesdays	48
Community Hospital Program in General Medicine	Post-Graduate Medical Institute 30 Fenway, Boston; course at Worcester County Hospital, St. Vincent Hospital, Memorial Hospital and Worcester City Hospital, Worcester, Mass.	G	SCI	Pt. Dem, LC, Pan, O, AV	16	1/ 9/57	2/27/57	I; 8 sessions 2 hr. weekly, Wednesdays	32
Fluid & Electrolyte Disturbances	Tufts University School of Medicine Post-Graduate Division 171 Harrison Ave., Boston	G	BC	Pt. Dem, Lec, Pan, AV	14	1/10/57	1/12/57	C; 3 days	20
Practitioners' Course (Extramural course in 18 centers in Michigan)	University of Michigan School of Medicine Ann Arbor, Mich.; course at various centers in state	G	CC	LC, Lec, AV	Unknown	Unknown		2 days in each center, 1 in spring, 1 in fall	Unknown
Fourth Symposium on Office Procedures for the Generalist	Education Program Committee Michigan Academy of General Practice 970 Meccabees Bldg., Detroit; course at Olds Hotel, Lansing, Mich.	G	BC	Sem, Lec, O	5	3/ 6/57	3/6 /57	C; 1 day	Nil
Allergy and Chest Diseases for General Physicians	Continuation Medical Education 1342 Mayo Memorial University of Minnesota, Minneapolis	G	BC	Lec, O	15	4/11/57	4/13/57	C; 3 days	30
Fall Refresher	Minnesota Academy of General Practice 159th Avenue S., Hopkins, Minn.; course at Prom Ball Room, St. Paul	G	BC	Lec, Pan, AV	7	10/17/56	10/17/56	C; 1 day	Nil
Regional Postgraduate Courses	Nebraska State Medical Association 1315 Sharp Bldg., Lincoln, Neb.; course at Alliance, Neb. North Platte, Neb. McCook, Neb. Hastings, Neb. York, Neb. Norfolk, Neb.	G	CC	Lec, O, AV	5	9/24/56 9/25/56 9/26/56 9/27/56 9/28/56 9/29/56		1 day	Nil
Second Annual Trauma Day	University of Nebraska College of Medicine 42nd and Dewey, Omaha	G	BC	Lec, O, AV	6	5/ 1/57	5/ 1/57	C; 1 day	10
Refresher Course—Hospital Administration	University of Nebraska College of Medicine 42nd and Dewey, Omaha	G	BC	Sem, Lec, Pan	15	6/13/57	6/15/57	C; 3 days	25
Two-Way Radio Conferences Albany Medical College to Area Hospitals	Albany Medical College 47 New Scotland Ave., Albany, N. Y.	G	CC(R)	Two-Way Radio	24	11/25/56	5/ 3/57	1 hr. a day for 24 days	Nil
Medical Clinical Seminar	Albany Medical College 47 New Scotland Ave., Albany, N. Y.	G	BC	Sem, Lec, Pan	6	1/10/57	1/10/57	C; 1 day	10
Recent Advances in Clinical Medicine	Albany Medical College 47 New Scotland Ave., Albany, N. Y.	G	BC	WR, Sem, Lec, Pan	15	1/10/57	1/12/57	C; 2½ days	25

Key will be found on page 1278.

GENERAL PRACTICE—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Recent Advances in Clinical Practice	University of Buffalo School of Medicine 3435 Main St., Buffalo, N. Y.	C	SC	Pt. Dem, LC, WR, Sem, Lec, Pan, O, AV	39	9/10/56	9/15/56	C; 6 days	75
Minor Surgery and Office Orthopedics	University of Buffalo School of Medicine 3435 Main St., Buffalo, N. Y.	G	BC	Pt. Dem, LC, Sem, Lec, Pan, O, AV	14	12/12/56	12/13/56	C; 2 days	30
Two-Way Radio Postgraduate Medical Conference	Glens Falls Hospital 100 Park St., Glens Falls, N. Y.	G	BCI	Lec, Pan, O	50	9/ 1/56	8/31/57	I; 50 sessions 1 hr weekly, Mondays	Nil
Postgraduate Medical Seminars	Glens Falls Hospital 100 Park St., Glens Falls, N. Y.	G	SCI	Pt. Dem, WR, Sem, Lec, Pan, O, AV	30	9/ 1/56	6/30/57	I; 10 sessions 3 hr. monthly, Thursdays	Nil
Graduate Symposium on Geriatric Medicine	American Geriatrics Society 25 Mechanic St., Wakefield, R. I.; course at Hotel Roosevelt, New York	G	BC	Pt. Dem, Lec, Pan, O, AV	16	11/29/56	11/30/56	C; 2 days	Nil
Postgraduate Radio Program	The New York Academy of Medicine Two E. 103 St., New York 29	G	HS(R)	Lec, Pan	52	9/56	9/57	I; 52 sessions 1 hr. weekly, Thursdays	Unknown
Selected Subjects of Current Significance	The New York Academy of Medicine Two E. 103 St., New York 29	G	SC	Lec, Pan, O, AV	17½	10/15/56	10/26/56	C; 10 days	10
Monthly Panel Meetings on Therapeutics for the General Physician	The New York Academy of Medicine Two E. 103 St., New York 29	G	SCI	Pan	9	11/ 2/56	4/ 5/57	I; 6 sessions 1½ hr. monthly, Fridays	Nil
Comprehensive Course in Medicine	New York Polyclinic Medical School and Hospital 345 W. 50th St., New York	G	SC	Lab, Pt. Dem, LC, WR, O, Sem, Lec, AV	1200	9/56	6/57	C; 180 days	800
Course for General Practitioners	New York Polyclinic Medical School and Hospital 345 W. 50th St., New York	G	SC	Lab, Pt. Dem, LC WR, Sur, Lec, AV	192	10/ 1/56 4/ 1/57	10/31/56	C; 30 days	100
General Medicine	New York Polyclinic Medical School and Hospital 345 W. 50th St., New York	G	SC	Lab, Pt. Dem, LC, WR, Lec, AV	192	Arranged		C; 28 days	100
555-A Electronics for Physicians	New York University Post-Graduate Medical School 550 First Ave., New York	G	SCI	Dem, Lec	15	9/ 4/56	11/13/56	I; 10 sessions 1½ hr. weekly, Tuesdays	75
630-A Tropical Medicine	New York University Post-Graduate Medical School 550 First Ave., New York	G	SC	Lab, Pt. Dem, Lec	245	Arranged		C; Unknown	300
Recent Advances in Diagnostic Procedures	Rochester General Hospital 501 W. Main St., Rochester, N. Y.	G	SCI	Lab, WR, Lec, O	10	3/ 7/57	4/ 4/57	I; 5 sessions 2 hr. weekly, Thursdays	10
Recent Advances in Medicine	Rochester General Hospital 501 W. Main St., Rochester, N. Y.	G	SC	Pt. Dem, LC, WR, Lec, Pan, O	6	4/18/57	4/18/57	C; 1 day	5
Postgraduate Course in Medicine	State University of New York Upstate Medical Center 766 Irving Ave., Syracuse, N. Y.	G	SCI	Sem, Lec, O, Av	25	10/11/56	11/22/56	I; 7 sessions 2 hr. weekly, Thursdays	15
Morganton Postgraduate Medical Course	Office of Continuation Education The School of Medicine University of North Carolina, Chapel Hill, N. C.; course at Grace Hospital, Morganton, N. C.	B	SCI	Lec	18	9/19/56	10/31/56	I; 6 sessions 3 hr. weekly, Wednesdays	20
Asheville Postgraduate Medical Course	Office of Continuation Education The School of Medicine University of North Carolina, Chapel Hill, N. C.; course at Memorial Mission Hospital, Ashville, N. C.	B	SCI	Lec	18	9/20/56	11/ 1/56	I; 6 sessions 3 hr. weekly, Thursdays	20
Postgraduate Seminar	Mecklenburg Co. Chapter North Carolina Academy of General Practice, Charlotte, N. C.; course at Hotel Charlotte, Charlotte, N. C.	G	BC	Lec, O	6	11/ 4/56	11/ 4/56	C; 1 day	Unknown
Duke Medical Postgraduate Course	Duke University School of Medicine Durham, N. C.	G	BC	Lab, Pt. Dem, LC, WR, Lec, Pan	28	6/17/57	6/20/57	C; 4 days	25
Seminar Program of The Southwestern Ohio Society of General Physicians	Southwestern Ohio Society of General Physicians 7017 Miami, Madeira, Ohio; course at University of Cincinnati College of Medicine, Cincinnati 19	G	BCI	Lec, Pan, AV	Unknown	Unknown	Unknown	I; 2 sessions 3 hr. weekly Thursdays and Sundays	25 for members, 10 per day for non members
General Practice	Frank E. Bunts Educational Institute 2020 E. 93rd St., Cleveland 6	G	BC	Pt. Dem, Sem, Lec, Pan, O, AV	10	2/ 6/57	2/ 7/57	C; 2 days	15
Annual Postgraduate Seminar	Huron Road Hospital 13951 Terrace Rd., Cleveland 12	B	BC	Lec, Pan, O	17	Spring/57	Spring/57	C; 2 days	20

1. The Influence of Nutritional Processes on Aging 2. Jaundice	Interstate Postgraduate Medical Association Box 1109, Madison 1, Wis.; course at Academy of Medicine of Cleveland & Cuyahoga County, Cleveland	B	BC	Lec, Pan	2	10/22/56	10/22/56	C; 1 day	Nil
Postgraduate Hospital Training Course in Medicine, Pediatrics and Surgery	Commission on Graduate Education The Medical Society of the State of Pennsylvania 230 State St., Harrisburg, Pa.	G	SCI	Pt. Dem, LC, WR, Lec	60	given 6 times in period from 9/1/56 to 8/31/57		I; 10 sessions 6 hr. weekly, Wednesdays	60
Postgraduate Seminar for the General Practitioner	Commission on Graduate Education The Medical Society of the State of Pennsylvania 230 State St., Harrisburg, Pa.	G	BC	Sem	6	8 one day Postgraduate Seminars to be given, 4 during period 9/1/56 to 12/31/56 and 4 during period of 1/1/57 to 4/30/57		C; 1 day	6
The Jefferson Graduate Assembly	Jefferson Medical College 1025 Walnut St., Philadelphia	G	BC	Lec, O	20	2/57	2/57	C; 3 days	15
Postgraduate Institute	Philadelphia County Medical Society 310 S. 21st St., Philadelphia 3; course at Bellevue-Stratford Hotel Philadelphia 3	G	BC	Lec, Pan, O, AV	24	3/19/57	3/22/57	C; 4 days	10 for non members
Advances in Medicine and Surgery	Graduate School of Medicine University of Pennsylvania, Philadelphia	B	SC	Lec, Pan, AV	30	9/17/56	9/21/56	C; 5 days	100 non-alumni 15 students 35 alumni
Postgraduate Seminar	Medical College of South Carolina 16 Lucas St., Charleston, S. C.	G	BC	Sem, Lec, Pan, AV	25	10/30/56	11/ 1/56	C; 3 days	Nil
Clinical Day	Vanderbilt University Hospital and Medical School 21st Ave. S., Nashville, Tenn.	G	BC	Pt. Dem, Lec, O	7	Variable twice a year		C; 1 day	Unknown
Management of Mass Casualties	Army Medical Service School Ft. Sam Houston, Tex.; course at Brooke Army Medical Center San Antonio, Tex.	G	SC	Sem, Lec, Pan, O, AV	40	10/ 1/56 11/26/56 2/25/57 4/ 1/57 6/ 3/57	10/ 5/56	C; 5 days	Nil
Clinical Seminars	The University of Texas Postgraduate School of Medicine Texas Medical Center, Houston 25, Texas; course at The University of Texas Postgraduate School of Medicine San Angelo, Texas	G	SCI	Pan		9/ 9/56	4/14/57	I; Sundays	Unknown
Treatment of Common Emergencies	The University of Texas Postgraduate School of Medicine Texas Medical Center, Houston 25, Texas	G	BC	Lec, Pan	8	9/15/56	9/15/56	C; 1 day	10
Emergency Procedures	The University of Texas Postgraduate School of Medicine Texas Medical Center, Houston 25, Texas; course at The University of Texas Postgraduate School of Medicine Texarkana, Texas	G	BC	Lec	6	10/14/56	10/14/56	C; 1 day	10
Medical Traineeship Arranged in Subject Desired	The University of Texas Postgraduate School of Medicine Texas Medical Center, Houston 25, Texas	G	MT			Arranged		Two weeks to one year	Varies according to length of study
The Acute Abdomen	University of Texas Postgraduate School of Medicine, San Antonio, Tex.; course at Robert B. Green Memorial Hospital San Antonio, Tex.	G	BCI	Pt. Dem, Lec, Pan	6	9/12/56	9/26/56	I; 3 sessions 2 hr. weekly, Wednesdays	10
Mass Casualties	University of Texas Postgraduate School of Medicine, San Antonio, Tex.; course at Robert B. Green Memorial Hospital San Antonio, Tex.	G	SCI	Lec, O	4	12/ 5/56	12/12/56	I; 2 sessions 2 hr. weekly, Wednesdays	5
Pharmacology of Steroids and Their Use in Clinical Medicine	University of Texas Postgraduate School of Medicine, San Antonio, Tex.; course at Robert B. Green Memorial Hospital San Antonio, Tex.	G	SCI	Pt. Dem, Lec, O	8	1/ 9/57	1/30/57	I; 4 sessions 2 hr. weekly, Wednesdays	10

Key will be found on page 1278.

GENERAL PRACTICE—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Fifth Postgraduate Conference in Medicine and Surgery	University of Texas Postgraduate School of Medicine Texas Medical Center, Houston, Tex.; course at Scott and White Memorial Hospitals, Scott, Sherwood Brindley Foundation Temple, Tex.	G	BC	Pt. Dem, LC, WR, Sur, Sem, Lec, Pan, O, AV	27	3/ 4/57	3/ 6/57	C; 3 days	15
Postgraduate Medical and Surgical Conference	The University of Texas Postgraduate School of Medicine Texas Medical Center, Houston, Texas; course at Scott and White Clinic-Hospitals Temple, Texas	G	BC	Lab, Pt. Dem, LC, WR, Sur, Lec	27	3/ 4/57	3/ 6/57	C; 3 days	5
May Clinical Meeting	University of Vermont College of Medicine Burlington, Vt.	G	BC	Lec, Pan	5	5/57	5/57	C; 1 day	Nil
Conferences on General Medicine	University of Virginia Medical School Charlottesville, Va.	G	BC	Pt. Dem, Lec, Pan, O, AV	6	Fall/56 Spring/57 Winter/57		C; 1 day	Nil
Jackson Clinic—Marquette Postgraduate Clinic	Jackson Clinic 30 S. Henry St., Madison, Wis.	G	BC	Lec, AV	4	9/29/56	9/29/56	C; 1 day	Nil
Circuit Teaching Program	State Medical Society of Wisconsin 704 E. Gorham St., Madison, Wis.; course at St. Agnes Hospital, Fond du Lac, Wis. Wausau Club, Wausau, Wis. Elks Club, Portage, Wis.	G	CC	Lec	5	9/12/56 9/14/56 9/14/56	9/13/56	1 day	6 including dinner
Circuit Teaching Program	State Medical Society of Wisconsin 704 E. Gorham St., Madison, Wis.; course at Elks Club, Rice Lake, Wis. Mead Hotel, Wisconsin Rapids, Wis. Elks Club, Appleton, Wis.	G	CC	Lec	5	10/18/56 10/19/56 10/20/56	10/18/56	1 day	6 including dinner
Circuit Teaching Program	State Medical Society of Wisconsin 704 E. Gorham St., Madison, Wis.; course at American Legion Club Richland Center, Wis. American Legion Club, Oconomowoc, Wis. Foeste Hotel, Sheboygan, Wis.	G	CC	Lec	5	1/17/57 1/18/57 1/19/57	1/17/57	1 day	Unknown
Circuit Teaching Program	State Medical Society of Wisconsin 704 E. Gorham St., Madison, Wis.; course at Monterey Hotel, Janesville, Wis. Hardware Mutuals Aud. and Hotel Whiting Stevens Point, Wis. Elks Club, Green Bay, Wis.	G	CC	Lec	5	2/14/57 2/15/57 2/16/57	2/14/57	1 day	Unknown

GYNECOLOGY
(See also Malignant Disease and Pathology)

Gynecology	College of Medical Evangelists 1720 Brooklyn Ave., Los Angeles 33	G	SCI	Lec, Pan	10	3/27/57	5/29/57	I; 10 sessions 1 hr. weekly, Wednesdays	30
Practical & Didactic Course in Office Gynecology	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	BCI	Lab, Pt. Dem, LC, Lec, O, EPP	16	9/ 5/56 11/ 7/56 1/ 9/57 2/27/57 5/ 1/57	9/26/56	I; 10 sessions 4 hr. weekly, Wednesdays	100
Vaginal Approach to Pelvic Surgery	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SC	Lab, Pt. Dem, LC, WR, Sur, Lec, O	20	9/10/56 10/15/56 2/ 4/57 3/ 4/57 4/29/57 6/10/57	9/14/56	C; 5 days	125
Course II Gynecology	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SC	Lab, Pt. Dem, LC, WR, Sur, Sem, Lec, O, AV	94	9/17/56 10/22/56 2/11/57 3/11/57 4/ 8/57 6/17/57	9/29/56	C; 12 days	150
Three-Week Combined Course in Gynecology & Obstetrics	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SC	Lab, Pt. Dem, LC, WR, Sur, Lec, Sem, O, AV	100	10/22/56	11/10/56	C; 18 days	225
Gynecology Surgery	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SCI	Lab, Pt. Dem, Sur, Lec, O	20	11/ 7/56 5/ 1/57	12/ 5/56	I; 5 sessions 4 hr. weekly, Wednesdays	100

Gynecology 3	Harvard Medical School Courses for Graduates 25 Shattuck St., Boston; course at Massachusetts General Hospital Boston	G	SC	Lab, Pt. Dem, LC, Lec, AV	78	9/10/56	9/21/56	C; 11 days	150
Gynecology 2	Harvard Medical School Courses for Graduates 25 Shattuck St., Boston; course at Free Hospital for Women, Boston	G	SC	Lab, Pt. Dem, LC, WR, Lec, AV	120	Arranged	Arranged	C; by arrangement	150 a mo.
Office Gynecology	Tufts University School of Medicine Postgraduate Division 171 Harrison Ave., Boston	G	BC	Pt. Dem, Lec, Pan, AV	14	3/ 7/57	3/ 9/57	C; 3 days	20
Gynecology for General Physicians	Continuation Medical Education 1342 Mayo Memorial, University of Minnesota Minneapolis, 14	G	BC	Lec, O	15	10/22/56	10/24/56	C; 3 days	30
Gynecology	University of Buffalo School of Medicine 3435 Main St., Buffalo, N. Y.	G	BC	Pt. Dem, LC, WR, Sur, Sem, Lec, Pan, O, AV	14	11/28/56	11/29/56	C; 2 days	30
Clinical and Operative (Cadaver) Gynecology	New York Polyclinic Medical School and Hospital 345 W. 50th St., New York	G	SC	Lab, Pt. Dem, LC, WR, Cad, Sur, Sem, Lec, AV, EPP	260	10/ 1/56 4/ 1/57	11/12/56	C; 36 days	175
Clinical Gynecology	New York Polyclinic Medical School and Hospital 345 W. 50th St., New York	G	SC	Pt. Dem, LC, Sem, Lec	216	10/ 1/56 4/ 1/57	11/12/56	C; 36 days	75
Gynecology	New York University Post-Graduate Medical School 550 First Ave., New York 16; course at Beth Israel Hospital, New York 3	S	SC	Lab, Pt. Dem, LC, WR, Sur, Sem, Lec, Pan, O, AV	320	9/ 5/56	12/19/56	C; 80 days	250
560-A Diagnosis and Therapy of Malignant Neoplasms of the Female Genital Tract	New York University Post-Graduate Medical School 550 First Ave., New York	S	SC	Lab, Pt. Dem, LC, Cad	35	10/ 1/56	10/ 5/56	C; 5 days	150
568-A Gynecological Cytology (For Specialists)	New York University Post-Graduate Medical School 550 First Ave., New York	S	SCI	Lab, Lec	32	10/ 2/56	11/29/56	I; 16 sessions 1 hr. Tuesdays, 3 hr. Thursdays	100
567-A Gynecology and Endocrinology	New York University Post-Graduate Medical School 550 First Ave., New York	G	SC	Lab, Pat. Dem, LC, Lec	35	10/ 8/56 4/ 8/57	10/12/56	C; 5 days	125
566-A Culdoscopy	New York University Post-Graduate Medical School 550 First Ave., New York	G	BCI	Pt. Dem, Lec	6	11/26/56 1/28/57 4/29/57	11/30/56	I; 3 sessions 2 hr. Monday, Wednesday, Friday	55
561-A Diagnosis and Therapy of Malignant Neoplasms of the Female Genital Tract	New York University Post-Graduate Medical School 550 First Ave., New York	S	SCI	Lab, Pt. Dem, LC, Cad	36	2/ 4/57	2/21/57	I; 6 sessions 6 hrs. twice weekly, Mondays, Thursdays	100
Postgraduate Course in Gynecology for General Practitioners	State University of New York Upstate Medical Center 766 Irving Ave., Syracuse, N. Y.	G	SC	Pt. Dem, LC, Pan	48	4/22/57	4/26/57	C; 5 days	25
				HEMATOLOGY					
Recent Advances in Hematology	City of Hope Medical Center 1500 E. Duarte Rd., Duarte, Calif.	G	BC	Pt. Dem, Lec, Pan, O	14	2/ 4/57	2/ 5/57	C; 2 days	25
Clinical Hematology	University of Colorado School of Medicine 4200 E. 9th Ave., Denver 20	B	SC	Lab, AV	48	7/57	7/57	C; 6 days	75
Hematology	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SC	Lab, Pt. Dem, LC, WR, Lec, O	30	6/17/57	6/22/57	C; 5 days	100
Hematology and Steroid Hormone Conference	State University of Iowa Iowa City	B	BC	Pt. Dem, Lec, Pan, O, AV	6	3/27/57	3/27/57	C; 1 day	10
Hematology	University of Kansas Medical Center 39th and Rainbow Blvd., Kansas City, Kan.	B	BC	Lab, Sem, Lec, Pan, O, AV	21	3/25/57	3/27/57	C; 3 days	35
Hematology	Tufts University School of Medicine Postgraduate Division 171 Harrison Ave., Boston	G	BC	Pt. Dem, Lec, Pan, AV	14	4/ 4/57	4/ 6/57	C; 3 days	20
Hematology	University of Nebraska College of Medicine 42nd and Dewey, Omaha	G	BC	Lec, Pan, O, AV	9	2/ 8/57	2/ 9/57	C; 2 days	15
Medicine (PM 66)	Montefiore Hospital 210th St. and Bainbridge Ave., New York	G	SCI	Lab, Pt. Dem, WR, Lec, AV	54	9/11/56 1/29/57	1/22/57	I; 18 sessions 3 hr. weekly, Tuesdays	75
Medicine (PM 67)	Montefiore Hospital 210th St. and Bainbridge Ave., New York	G	SCI	Lab, Pt. Dem, WR, Lec	30	9/18/56 2/ 5/57	1/ 8/57	I; 15 sessions 2 hr. weekly, Tuesdays	75

Key will be found on page 1278.

HEMATOLOGY—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Hematology (PM 31)	Mount Sinai Hospital Fifth Ave. & 100th St., New York 29	G	SCI	Lab, Pt. Dem, Lec	24	10/30/56	12/18/56	I; 8 sessions 3 hr. weekly, Tuesdays	50
Laboratory Methods in Hematology (PM 30)	Mount Sinai Hospital Fifth Ave. & 100th St., New York 29	G	SC	Lab, EPP	64	2/25/57	3/21/57	C; 16 days	200
Blood Transfusions (d)	New York Polyclinic Medical School and Hospital 345 W. 50th St., New York	G	SC	Lab, Pt. Dem, WR, Sem, Lec, AV	80	Arranged		C; 10 days	100
5419-A Hematology	New York University Post-Graduate Medical School 550 First Ave., New York	G	SC	Lec	35	11/12/56	11/16/56	C; 5 days	85
5420-A Clinical Hematology	New York University Post-Graduate Medical School 550 First Ave., New York	G	SCI	Pt. Dem, Lec	18½	4/ 9/57	5/28/57	I; 15 sessions 1 hr. Tuesdays, 1½ hr. Thursdays	45
Pathologic Physiology of the Blood Dyscrasias	American College of Physicians 4200 Pine St., Philadelphia; course at Washington University School of Medicine, St. Louis 10	S	SC	Lab, Lec, Pan	40	2/18/57	2/22/57	C; 5 days	30 Members 60 Non-members
Hematology and Blood Bank	Graduate School of Medicine University of Pennsylvania, Philadelphia	B	SC	Lab, Lec, Pan	60	11/ 1/56	11/14/56	C; 10 days	200
Blood Group Incompatibilities and Erythroblastosis Fetalis	Graduate School of Medicine University of Pennsylvania, Philadelphia; course at The Children's Hospital Philadelphia	G	BC	Lab, Sem, Lec, Pan, O	14	6/57	6/57	C; 2 days	50
Practical Pediatric Hematology	Graduate School of Medicine University of Pennsylvania, Philadelphia	B	BC	Lec, Lab, Pan	18	6/57	6/57	C; 3 days	60

INTERNAL MEDICINE

(See also Cardiovascular Disease, Endocrinology, Electrocardiography, and Peripheral Vascular Disease)

The Use of Isotopes in Medicine	City of Hope Medical Center 1500 E. Duarte Rd., Duarte, Calif.	G	BC	Pt. Dem, Lec, Pan, O	14	1/21/57	1/22/57	C; 2 days	25
855—Intensive Review of Internal Medicine	University of Southern California School of Medicine Medical Research Bldg., 2025 Zonal Ave. Los Angeles 33	S	SC	Lec, AV	40	9/24/56	10/ 5/56	C; 10 days	65
852—Bedside Clinics and Panel Discussion on Therapy in Internal Medicine	University of Southern California School of Medicine Postgraduate Division 2025 Zonal Ave., Los Angeles 33; course at Los Angeles County Hospital	S	SCI	Pt. Dem, LC, WR, Pan	24	10/18/56	1/24/57	I; 12 sessions 2 hr. weekly, Thursdays	65
847—Live Clinic in Diseases of the Liver and Billiary Tract	University of Southern California School of Medicine Postgraduate Division 2025 Zonal Ave., Los Angeles 33; course at Los Angeles County Hospital	S	BC	Pt. Dem, LC, Lec, Pan	23	Spring/57	Spring/57	C; 3 days	65
Dynamics of Metabolic Disease	Highland Alameda County Hospital 2701—14th Ave., Oakland 6, Calif.	G	BC	Lab, Pt. Dem, Lec, Pan, O, AV	32	2/11/57	2/14/57	C; 4 days	75
A Series of Postgraduate Medical Programs	U. S. Veterans Administration Hospital (Fort Miley) 42nd Ave. at Clement St. San Francisco	G	SCI	Lab, Pt. Dem, LC, Lec, Pan	12	4/24/57	5/29/57	I; 6 sessions 2 hr. weekly, Tuesdays	10 for A.A.G.P. Members 20 for non-members
Fundamentals of Fluid and Electrolyte Metabolism	University of Colorado School of Medicine 4200 E. 9th Ave., Denver 20	G	SCI	Lec	24	10/56	12/56	I; 12 sessions 2 hr. weekly	10
Present Concepts in Internal Medicine	Department of the Army Office of the Surgeon General, Education and Training Division, Washington 25, D. C.; course at Letterman Army Hospital San Francisco	G	SC	LC, Lec	40	10/29/56	11/ 2/56	C; 5 days	Nil
26th Venereal Disease Conference	Dept. of Health, Education and Welfare U. S. Public Health Service Washington 25, D. C.; course at a University School of Medicine (undetermined)	G	SC	Sem, Lec, Pan, O, AV	30	unknown		C; 5 days	Nil
Seminar on Diabetes Mellitus	Division of Post-Graduate Education College of Medicine, University of Florida Gainsville, Fla.; course at Roosevelt Hotel, Jacksonville, Fla.	B	BC	Sem, Lec, Pan, AV	12	10/19/56	10/20/56	C; 2 days	10
Professor Pro Tempore Medicine	Mt. Sinai Hospital of Greater Miami 4300 Alton Rd., Miami Beach, Fla.	S	SC	Lab, Pt. Dem, LC, WR, Sem, Lec, Pan, O, AV	44	9/17/56	9/22/56	C; 6 days	Nil

General Medicine	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SCI	Lab, Pt. Dem, LC, WR, Lec, O, EPP	20	9/19/56 3/20/57	11/21/56	I; 10 sessions 2 hr. weekly, Wednesdays	100
Arthritis and Allied Rheumatic Diseases	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SCI	Lab, Pt. Dem, LC, Lec, O	20	9/21/56 3/22/57	11/23/56	I; 10 sessions 2 hr. weekly, Fridays	100
Course II Internal Medicine	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SC	Pt. Dem, LC, WR, Sem, Lec, O	80	9/24/56 5/ 6/57	10/ 6/56	C; 12 days	125
Differential Diagnosis	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SCI	Pt. Dem, LC, Lec, O	20	3/20/57	5/22/57	I; 10 sessions 2 hr. weekly, Wednesdays	100
Liver and Biliary Tract Diseases	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SC	Lab, Pt. Dem, LC, WR, Sem, Lec, O, AV	30	6/24/57	6/29/57	C; 5 days	100
Postgraduate Course on Thyroid Diseases	Indiana University School of Medicine 1100 W. Michigan St., Indianapolis	G	BC	Lec, Pan, O, AV	7	10/10/56	10/10/56	C; 1 day	10
Internal Medicine	University of Kansas Medical Center 39th & Rainbow Blvd., Kansas City, Kan.	B	BC	Pt. Dem, LC, WR, Lec, Pan, AV	28	11/12/56	11/15/56	C; 4 days	50
Spring Postgraduate Seminars in Medicine	University of Louisville Medical Center 101 W. Chestnut St., Louisville, Ky.	G	BCI	Lec, O, AV	14	4/ 4/56	4/25/56	I; 4 sessions 3½ hr. weekly, Thursdays	20
Topics in Clinical Medicine	The Johns Hopkins Hospital 601 N. Broadway, Baltimore	B	SC	Pt. Dem, LC, WR, Lec, Pan, O	40	5/13/57	5/18/57	C; 5½ days	100
Internal Medicine 1	Harvard Medical School Courses for Graduates 25 Shattuck St., Boston; course at Boston City Hospital	G	SC	Lab, Pt. Dem, LC, WR, Lec, O	Unknown	9/ 4/56	8/31/57	C; 1 yr.	800
Internal Medicine 2	Harvard Medical School Courses for Graduates 25 Shattuck St., Boston; course at Boston City Hospital	G	SC	Lab, Pt. Dem, LC, WR, Lec, O	Unknown	9/ 4/56 6/ 3/57	11/30/56	C; 76 days	400
Internal Medicine 3	Harvard Medical School Courses for Graduates 25 Shattuck St., Boston; course at Massachusetts General Hospital Boston	G	SC	Pt. Dem, Lec, Pan, O	180	6/17/57	7/27/57	C; 36 days	250
Thyroid Disease and the Use of Radioactive Iodine	Harvard Medical School Courses for Graduates 25 Shattuck St., Boston; course at Massachusetts General Hospital and Beth Israel Hospital, Boston	S	SC	Lab, Pt. Dem, WR, Lec	140	2/ 4/57 7/ 1/57	3/ 1/57	C; 20 days	300
Diabetes and Endocrinology In Relation To General Medicine	Harvard Medical School Courses for Graduates 25 Shattuck St., Boston; course at New England Deaconess Hospital Boston	G	BC	Pt. Dem, Lec	21	7/ 1/57	7/ 3/57	C; 3 days	30
Review of Recent Advances in Internal Medicine	Tufts University School of Medicine Post-Graduate Division 171 Harrison Ave., Boston	G	SC	Pt. Dem, Lec, Pan, AV	35	10/ 1/56	10/ 5/56	C; 5 days	50
Rheumatic Diseases	Tufts University School of Medicine Postgraduate Division 171 Harrison Ave., Boston	G	BC	Pt. Dem, Lec, Pan, AV	14	11/ 1/56	11/ 3/56	C; 3 days	20
Diabetes	Tufts University School of Medicine Postgraduate Division 171 Harrison Ave., Boston	G	BC	Pt. Dem, Lec, Pan, AV	14	2/ 7/57	2/ 9/57	C; 3 days	20
Clinical Internal Medicine	University of Michigan Medical School Dept. of Postgraduate Medicine University Hospital, Ann Arbor, Mich.	G	SCI	Pt. Dem, Sem, Lec, O, AV	100	10/ 4/56	4/18/57	I; 25 sessions 4 hr. weekly, Thursdays	65
Metabolism and Endocrinology	University of Michigan Medical School Dept. of Postgraduate Medicine University Hospital, Ann Arbor, Mich.	G	SC	Pt. Dem, Lec, O	30	4/ 1/57	4/ 5/57	C; 5 days	50
Rheumatology	University of Michigan Medical School Dept. of Postgraduate Medicine University Hospital, Ann Arbor, Mich.	G	BC	Pt. Dem, LC, Lec, Pan, O, AV	18	4/22/57	4/24/57	C; 3 days	50
Recent Advances in Therapeutics	University of Michigan Medical School Dept. of Postgraduate Medicine University Hospital, Ann Arbor, Mich.	G	SC	Pt. Dem, Lec, Pan, O, AV	30	4/29/57	5/ 3/57	C; 5 days	50
Internal Medicine for Internists	Continuation Medical Education 1342 Mayo Memorial, University of Minnesota, Minneapolis	S	BC	Lec, O	15	3/18/57	3/20/57	C; 3 days	30
Dr. A. Morris Ginsberg Memorial Clinical Seminar	Menorah Medical Center 4949 Rockhill Rd., Kansas City, Mo.	G	BC	Pt. Dem, LC, WR, Sem, Lec, Pan, O, EPP	18	Fall/56	Fall/56	C; 3 days	Nil
Arthritis Symposium	University of Nebraska College of Medicine 42nd and Dewey, Omaha	G	BC	Lec, Pan, O, AV	6	2/ 7/57	2/ 7/57	C; 1 day	10
Renal Diseases	University of Nebraska College of Medicine 42nd and Dewey, Omaha	G	BC	Lec, Pan, O, AV	9	3/ 8/57	3/ 9/57	C; 2 days	15

Key will be found on page 1278.

INTERNAL MEDICINE—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Internal Medicine	St. Michael's Hospital 306 High St., Newark, N. J.	G	SCI	Pt. Dem, Lec, Pan, O, AV	20	10/10/56	2/27/57	I; 10 sessions 2 hr. twice monthly, Wednesdays	25
Evaluation of the Newer Drugs	University of Buffalo School of Medicine 3435 Main St., Buffalo, N. Y.	G	BC	Pt. Dem, LC, Sem, Lec, Pan, O, AV	14	10/ 3/56	10/ 4/56	C; 2 days	30
Fluid and Electrolyte Therapy	University of Buffalo School of Medicine 3435 Main St., Buffalo, N. Y.	G	BC	Pt. Dem, LC, Sem, Lec, Pan, O, AV	7	10/18/56	10/18/56	C; 1 day	15
Internal Medicine	Community Hospital at Glen Cove Walnut Ave., Glen Cove, N. Y.	G	SCI	Sem, Lec, O	20	9/23/56	11/25/56	I; 10 sessions 2 hr. weekly, Sundays	50
Arthritis (PM 81)	Hospital for Joint Diseases 1919 Madison Ave., New York 35	G	SCI	LC, Lec	30	3/ 6/57	5/ 8/57	I; 10 sessions 3 hr. weekly, Wednesdays	100
Recent Advances in Internal Medicine	Joint Committee on Post-Graduate Education 1313 Bedford Ave., Brooklyn 16, N. Y.; course at Kings County Hospital, Brooklyn, N. Y.	G	SCI	Lec	15	10/56	12/56	I; 10 sessions 1½ hr. weekly, Wednesdays	30
Medicine (PM 74)	Montefiore Hospital 210th St. and Bainbridge Ave., New York	G	SCI	WR, Sem	68	9/25/56 2/ 5/57	1/29/57	I; 17 sessions 4 hr. weekly, Tuesdays	150
Arthritis	New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York	G	SCI	Lab, Pt. Dem, LC, WR, Sem, Lec, O, AV	8	Arranged		I; 8 sessions 1½ hr. weekly, Tuesdays	50
5435-A Clinical Internal Medicine	New York University Post-Graduate Medical School 550 First Ave., New York 16	G	SCI	LC, WR	Unknown	9/ 6/56 1/ 3/57 3/ 7/57	3, 6, or 9 mo.	I; 4 hr. weekly, Thursdays	60 for 3 mo.
5437-A Normal and Pathological Physiology; Functional and Chemical Aspects	New York University Post-Graduate Medical School 550 First Ave., New York 16	G	SC	Lec	70	9/17/56	9/28/56	C; 10 days	125
460-A Biochemistry and Physiology in Disease; Laboratory Diagnosis	New York University Post-Graduate Medical School 550 First Ave., New York 16	G	SCI	Lec	16	10/ 2/56	11/27/56	I; 8 sessions 2 hr. weekly, Tuesdays	Unknown
5413-A Auscultation of the Heart	New York University Post-Graduate Medical School 550 First Ave., New York 16	G	BC	Pt. Dem, Lec	21	10/29/56 2/25/57	10/31/56	C; 3 days	55
5433-A Problems in Clinical Medicine	New York University Post-Graduate Medical School 550 First Ave., New York 16	G	SCI	Pt. Dem, LC, WR, AV, EPP	75	11/ 2/56	4/26/57	I; 25 sessions 3 hr. weekly, Fridays	75
5424-A Diabetes Mellitus, Hyperinsulinism, and Hypoglycemia	New York University Post-Graduate Medical School 550 First Ave., New York 16	G	BC	Lec	21	11/12/56	11/14/56	C; 3 days	40
543-A Arthritis and Allied Rheumatic Disorders	New York University Post-Graduate Medical School 550 First Ave., New York	G	SC	LC, Lec	35	11/12/56	11/16/56	C; 5 days	85
5439-A Recent Advances in the Diagnosis and Treatment of Poisonings	New York University Post-Graduate Medical School 550 First Ave., New York	G	BC	Lab, Lec	21	12/ 3/56	12/ 5/56	C; 3 days	60
544-A Arthritis and Related Disorders	New York University Post-Graduate Medical School 550 First Ave., New York	G	SCI	Pt. Dem, Lec	35	2/12/57	3/26/57	I; 5 sessions 7 hr. weekly, Tuesdays	85
5429-A Treatment of Renal Failure and Hypertension	New York University Post-Graduate Medical School 550 First Ave., New York	G	SCI	Lec	24	4/ 8/57	5/27/57	I; 8 sessions 3 hr. weekly, Mondays	35
541-A Seminar in Internal Medicine	New York University Post-Graduate Medical School 550 First Ave., New York	G	SC	Pt. Dem, Sem, Lec	280	4/ 8/57	5/31/57	C; 40 days	250
542-A Arthritis and Allied Rheumatic Disorders	New York University Post-Graduate Medical School 550 First Ave., New York	G	SCI	Pt. Dem, Lec	24	4/ 9/57	5/28/57	I; 8 sessions 3 hr. weekly, Tuesdays	55
5428-A Diseases of the Liver and Biliary Tract	New York University Post-Graduate Medical School 550 First Ave., New York	G	SCI	Pt. Dem, Lec	16	4/10/57	5/29/57	I; 8 sessions 2 hr. weekly, Wednesdays	40
5438-A Normal and Pathological Physiology: Functional and Chemical Aspects	New York University Post-Graduate Medical School 550 First Ave., New York	G	SCI	Pt. Dem, Lec	16	4/10/57	5/29/57	I; 8 sessions 2 hr. weekly, Wednesdays	50
5421-A Problems in Diagnosis	New York University Post-Graduate Medical School 550 First Ave., New York	G	SCI	Pt. Dem, LC, Lec	12	4/12/57	5/31/57	I; 7 sessions 1¾ hr. weekly, Fridays	35

5432-A Symposium on Modern Therapeutics in Internal Medicine	New York University Post-Graduate Medical School 550 First Ave., New York	G	SC	Pt. Dem, Lec	70	6/10/57	6/21/57	C; 10 days	100
5430-A The Management of Chronic Kidney Disease	New York University Post-Graduate Medical School 550 First Ave., New York	G	BC	Lec	14	6/24/57	6/25/57	C; 2 days	35
5431-A The Management of Hypertension	New York University Post-Graduate Medical School 550 First Ave., New York	G	BC	Lec	14	6/26/57	6/27/57	C; 2 days	35
5436-A Tutorial Course in Internal Medicine	New York University Post-Graduate Medical School 550 First Ave., New York	G	SC	Lab, Pt. Dem, LC, WR, Lec	Unknown	Arranged		C; minimum 4 mo.	125 a mo.
Progress in Management of Rheumatic Disease	Frank E. Bunts Educational Institute 2020 E. 93rd St., Cleveland 6	G	BC	Pt. Dem, Sem, Lec, Pan, O, AV	10	10/24/56	10/25/56	C; 2 days	15
Recent Advances in Internal Medicine	American College of Physicians 4200 Pine St., Philadelphia 4; course at University of Washington School of Medicine, Seattle 5	S	SC	Lec, Pan	40	10/22/56	10/26/56	C; 5 days	30 Members 60 Non-members
Recent Advances in Internal Medicine	American College of Physicians 4200 Pine St., Philadelphia 4; course at Emory University School of Medicine, Atlanta, Ga.	S	SC	Lec, Pan	40	3/18/57	3/22/57	C; 5 days	30 Members 60 Non-members
Pathology and Pathologic Physiology in Internal Medicine	American College of Physicians 4200 Pine St., Philadelphia 4; course at Cleveland Clinic, Cleveland	S	SC	Lec, Pan	40	3/25/57	3/29/57	C; 5 days	30 Members 60 Non-members
Diabetes and Basic Metabolic Problems	American Diabetes Association, Inc. 1 East 45th St., New York 17; course at College of Medicine Ohio State University, Columbus, Ohio	G	BC	Pt. Dem, Sem, Lec, Pan, O	20	1/30/57	2/ 1/57	C; 3 days	40 Members 75 Non-members
Rheumatology	University of Oregon Medical School 3181 S.W. Sam Jackson Park Rd., Portland	G	BC	Pt. Dem, LC, WR, Lec, Pan, O	21	10/29/56	10/31/56	C; 3 days	30
Latest Advances in Internal Medicine	American College of Physicians 4200 Pine St., Philadelphia 4; course at Vanderbilt University School of Medicine, Nashville 5, Tenn.	S	SC	Lec, Pan	40	10/15/56	10/19/56	C; 5 days	30 A.C.P. Members 60 Non-members
Recent Advances in Internal Medicine	American College of Physicians 4200 Pine St., Philadelphia 4; course at University of Oklahoma School of Medicine, Oklahoma City	S	SC	Lec, Pan	40	Autumn/56	Autumn/56	C; 5 days	30 Members 60 Non-members
Applied Aspects of Calcium and Phosphorus Metabolism	Graduate School of Medicine University of Pennsylvania Philadelphia	G	BC	Lec, Pan	40	3/11/57	3/13/57	C; 3 days	40
Ionic (Acid Base) Balance and Water Balance with Clinical Applications	Graduate School of Medicine University of Pennsylvania Philadelphia	G	BC	Sem, Lec, Pan		5/22/57	5/24/57	C; 3 days	60
Modern Viewpoints in Carbohydrate and Fat Metabolism with Clinical Applications	Graduate School of Medicine University of Pennsylvania Philadelphia	B	BC	Lec, Pan	12	6/ 3/57	6/ 4/57	C; 2 days	40
The Arthritides	The University of Texas Post-Graduate School of Medicine Texas Medical Center, Houston 25, Texas	G	BC	Lec	Unknown	1/57	1/57	C; 2½ days	30
Cardio-Pulmonary Function Studies and Clinical Applications	University of Vermont and Mary Fletcher Hospital Mary Fletcher Hospital, Burlington, Vt.	S	SC	Lab, Pt. Dem, LC, WR, Sem, Lec, Pan, O	40	11/ 5/56	11/10/56	C; 6 days	Unknown
Fluid and Electrolyte Balance	University of Washington School of Medicine Seattle 5	G	BC	Lab, Pt. Dem, Sem, Lec, O, EPP	21	9/12/56	9/15/56	C; 4 days	45
				MALIGNANT DISEASE **(See also Gynecology)**					
Recent Advances in the Management of Cancer	City of Hope Medical Center 1500 E. Duarte Rd., Duarte, Calif.	G	BC	Pt. Dem, Lec, Pan, O	21	11/12/56	11/14/56	C; 3 days	25
Southeastern States Cancer Seminar	State Board of Health Cancer Division P. O. Box 210, Jacksonville, Fla.	G	BC	Sem, Pan, O, AV	14	11/ 5/56	11/ 6/56	C; 2 days	Nil
Physician's Postgraduate Course in Cancer Cytology	Cancer Institute at Miami 1155 N.W. 14th St., Miami, Fla.	S	MT	Unknown	12 mo.	continuous		12 mo.	150 first mo. 175 second mo. 50 third mo. 25 each for following mo. 450 one year
Cancer Teaching Clinic	Westfield State Sanatorium Westfield, Mass.	G	SC	Pt. Dem, LC, Lec, Pan, O, AV	3	11/56 5/57	11/56	C; 1 day	Nil

Key will be found on page 1278.

MALIGNANT DISEASE—Continued

Title of Course	Location	Designed For	Type	Instruction Methods of	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Cancer Symposium	State University of Iowa Iowa City	B	BC	Pt. Dem, Lec, Pan, O, AV	10	12/ 7/56	12/ 8/56	C; 1½ days	15
Institute on Cancer of the Head and Neck	University of Nebraska College of Medicine 42nd and Dewey, Omaha	G	BC	Pt. Dem, Lec, O, AV	12	11/28/56	11/29/56	C; 2 days	20
The Diagnosis and Managment of Early Cancer	Memorial Center for Cancer and Allied Diseases 444 E. 68th St., New York	G	BC	Pt. Dem, LC, Sem, Lec, O, AV, EPP	20	4/18/57	4/20/57	C; 3 days	40
Medicine (PM 72)	Montefiore Hospital 210th St. and Bainbridge Ave., New York	G	SCI	WR, Sem, Lec	72	9/11/56 1/29/57	1/22/57	I; 18 sessions 4 hr. weekly, Tuesdays	150
602-A Basic Problems in Cancer Therapy	New York University Post-Graduate Medical School 550 First Ave., New York	S	SC	Lab, Pt. Dem, LC, Sem, Lec, Pan, O, AV	88	1/21/57	2/ 2/57	C; 12 days	200
Diagnosis and Treatment of Malignant Neoplasms	University of Oregon Medical School 3181 S.W. Sam Jackson Rd., Portland	G	SC	Pt. Dem, LC, Lec, Pan, O, AV	35	9/10/56	9/14/56	C; 5 days	25
Clinical Symposium on Management of Carcinoma of Breast	The University of Texas Post-Graduate School of Medicine Houston, Tex.; course at M. D. Anderson Hospital and Tumor Institute, Houston 25, Tex.	G	BC	Pt. Dem, Lec	10	11/ 2/56	11/ 3/56	C; 2 days	Unknown
M. D. Anderson Hospital and Tumor Institute Annual Cancer Symposium	University of Texas Post-Graduate School of Medicine Houston 25, Tex.; course at M. D. Anderson Hospital and Tumor Institute, Houston 25, Tex.	B	BC	Lec	20	3/ 7/57	3/ 9/57	C; 3 days	Unknown
NEUROLOGY **(See also Anatomy)**									
Neuroroentgenology	Program Director 10th Conn. Post-Graduate Seminar in Psychiatry and Neurology Connecticut State Hospital, Middletown, Conn.; course at Yale University School of Medicine 333 Cedar St., New Haven, Conn.	S	BCI	Lab, Lec, O, AV	8	9/24/56	10/15/56	I; 4 sessions 2 hr. weekly, Mondays	Nil
Neuropathology	Program Director 10th Conn. Post-Graduate Seminar in Psychiatry and Neurology Connecticut State Hospital, Middletown, Conn.; course at Yale University School of Medicine 333 Cedar St., New Haven, Conn.	S	SCI	Lab, Lec, O, AV	20	9/26/56	11/14/56	I; 8 sessions 2½ hr. weekly, Wednesdays	Nil
Clinical Neurology	Program Director 10th Conn. Post-Graduate Seminar in Psychiatry and Neurology Connecticut State Hospital, Middletown, Conn.; course at Yale University School of Medicine 333 Cedar St., New Haven, Conn.	S	SCI	Lec, O, AV	39	9/24/56	12/ 3/56	I; 13 sessions 2½ hr. weekly, Mondays	Nil
Pediatric Neurology	Program Director 10th Conn. Post-Graduate Seminar in Psychiatry and Neurology Connecticut State Hospital, Middletown, Conn.; course at Yale University School of Medicine 333 Cedar St., New Haven, Conn.	S	BCI	Lec, O, AV	12	4/22/57	5/ 6/57	I; 8 sessions 1½ hr. weekly, Monday	Nil
Neurology Postgraduate Course	State University of Iowa Medical School Iowa City	B	BC	Pt. Dem, Lec, Pan, O, AV	6	4/57	4/57	C; 1 day	10
Neurology	University of Kansas Medical Center 39th and Rainbow Blvd., Kansas City, Ks.	B	BC	Pt. Dem, Sem, Lec, Pan, O, AV	14	2/27/57	2/28/57	C; 2 days	30
Neurological Medicine	Harvard Medical School Courses for Graduates 25 Shattuck St., Boston; course at Boston City Hospital	S	SC	Pt. Dem, LC, Lec, O	38	Unknown	Unknown	C; 5 days	150
Neurology	Tufts University School of Medicine Postgraduate Division 171 Harrison Ave., Boston	G	BC	Pt. Dem, Lec, Pan, AV	21	5/22/57	5/25/57	C; 4 days	20
Postgraduate Seminar in Neurology and Psychiatry	Metropolitan State Hospital 475 Trapelo Road, Waltham, Mass.	S	SCI	Lab, Lec	46	10/ 5/56	12/ 7/56	I; 17 sessions 3 hr. twice weekly, Fridays, Saturdays	Nil
Neurology for General Physicians and Surgeons	Continuation Medical Education 1342 Mayo Memorial University of Minnesota Minneapolis 14, Minn.	G	SC	Lec, O	33	2/11/57	2/16/57	C; 6 days	50
Cerebral Palsy (PM1)	Columbia-Presbyterian Medical Center 630 W. 168th St., New York	G	SC	LC, Lec, Pan	105	10/15/56 3/ 4/57	11/ 2/56	C; 15 days	100

Neurology (PM 60)	Montefiore Hospital 210th St. & Bainbridge Ave., New York 67	G	SCI	Lab, WR, Lec	108	11/ 5/56	12/ 1/56	I; 36 sessions 3 hr. 4 times weekly, Mondays, Wednesdays, Fridays, Sundays	150
Neurology (PM 30)	Mount Sinai Hospital Fifth Ave. & 100th St., New York 29	G	SC	LC, Sem, Lec	30	4/ 1/57	4/ 5/57	C; 5 days	75
644-A Neuroanatomy and Neurophysiology	New York University Post-Graduate Medical School 550 First Ave., New York	G	SCI	Lab, Lec	126	9/17/56	12/ 7/56	I; 36 sessions 3½ hr. 3 times weekly, Mondays, Wednesdays, Fridays	250
Clinical Neurology	American College of Physicians 4200 Pine St., Philadelphia 2; course at Jefferson Medical College of Philadelphia, Philadelphia 4	S	SC	Lec, Pan	40	10/15/56	10/19/56	C; 5 days	30 for A. C. P. Members 60 for Non-Members
Pain Syndromes: Diagnosis and Treatment by Regional Block	University of Pennsylvania Graduate School of Medicine Philadelphia	G	SC	Pt. Dem, O	Unknown	10/ 1/56 11/ 1/56 12/ 1/56 1/ 1/57 2/ 1/57 3/ 1/57 4/ 1/57 5/ 1/57	10/19/56	C; 15 days	200
Neurological Examination, Diagnosis and Treatment of Common Neurological and Neurosurgical Disorders	University of Texas Post-Graduate School of Medicine San Antonio, Tex.; course at Robert B. Green Memorial Hospital San Antonio, Tex.	G	SCI	Pt. Dem, Lec, O	10	10/ 3/56	10/31/56	I; 5 sessions 2 hr. weekly, Wednesdays	10
The Brain Damaged Child	The University of Texas Post-Graduate School of Medicine Texas Medical Center, Houston 25, Texas	G	BC	Lec		2/57	2/57	C; 3 days	Unknown
Neurology	University of Washington School of Medicine Seattle 5	B	BC	Pt. Dem, LC, Sem, Lec, Pan, O	21	5/57	5/57	C; 2½ days	60
NEUROLOGY & PSYCHIATRY									
Postgraduate Seminar in Neurology and Psychiatry	Metropolitan State Hospital 475 Trapelo Road, Waltham, Mass.	S	SCI	Lec	27	3/ 1/57	4/26/57	I; 9 sessions 3 hr. weekly, Fridays	Nil
Psychiatry (PM 1)	Columbia-Presbyterian Medical Center 630 W. 168th St., New York 32	S	SC	Lab, Lec	350	10/ 1/56	12/ 7/56	C; 50 days	300
647-A Psychiatry & Neurology	New York University Post-Graduate Medical School 550 First Ave., New York	G	SC	Pt. Dem, LC, Lec	420	9/17/56	12/ 7/56	C; 12 weeks	300
Clinicobiologic Neurology and Psychiatry	Graduate School of Medicine University of Pennsylvania, Philadelphia	B	SC	Lab, Pt. Dem, Lec, Pan	120	9/24/57	12/17/57	C; 60 days	300
Institute on Neurology & Psychiatry	Medical College of South Carolina 16 Lucas St., Charleston, S. C.	G	BC	Lec	5	4/ 5/57	4/ 5/57	C; 1 day	Nil
OBSTETRICS									
Management of Infertility	College of Medical Evangelists 1720 Brooklyn Ave., Los Angeles 33	G	SCI	Lec, Pan	12	1/17/57	3/ 7/57	I; 8 sessions 1½ hr. weekly, Thursdays	30
Tri-State Obstetric Seminar	Florida State Board of Health—Bureau of Maternal and Child Health P. O. Box 2230, Jacksonville 1, Fla.; course at Daytona Plaza Hotel, Daytona Beach, Fla.	G	BC	Sem, Lec, Pan, O, AV	15	9/10/56	9/12/56	C; 3 days	Nil
General & Surgical Obstetrics	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SCI	Lab, Pt. Dem, LC, WR, Sur, Lec, O	50	9/19/56 3/20/57	11/21/56	I; 10 sessions 5 hr. weekly, Wednesdays	150
Course I Obstetrics	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SC	Lab, Pt. Dem, LC WR, Sur, Sem, Lec, O, AV	75	10/ 1/56 11/ 5/56 2/ 5/57 3/25/57 5/ 5/57	10/13/56	C; 12 days	150

Key will be found on page 1278.

OBSTETRICS—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Clinical Obstetrics	Harvard Medical School Courses for Graduates 25 Shattuck St., Boston; course at Boston Lying-In Hospital, Boston	G	SC	Pt. Dem, LC, WR, Lec, O	120	10/ 1/56 11/ 1/56 4/ 1/57 5/ 1/57	10/31/56	C; 27 days	150
Obstetrics for Specialists	Continuation Medical Education 1342 Mayo Memorial, University of Minnesota Minneapolis 14	S	BC	Lec, O	15	3/21/57	3/23/57	C; 3 days	30
Obstetrics (PM80)	Margaret Hague Maternity Hospital 88 Clifton Place, Jersey City, N. J.	G	MT	LC, WR, Lec	3 mo. full time	First of each mo.	Last of ea. mo.	3 mo.	350
Obstetrics (PM81)	Margaret Hague Maternity Hospital 88 Clifton Place, Jersey City, N. J.	G	SC	LC, Lec	1 mo. full time	First of each mo.	Last of ea. mo.	1 mo.	100
Obstetrics	University of Buffalo School of Medicine 3435 Main St., Buffalo, N. Y.	C	BC	Pt. Dem, LC, WR, Sur, Sem, Lec, Pan, O, AV, EPP	14	3/ 6/57	3/ 7/57	C; 2 days	30
Manikin Obstetrics	New York Polyclinic Medical School and Hospital 345 W. 50th St., New York	G	SCI	Pt. Dem, Cad, Sem, Lec, AV, EPP	24	10/ 1/56 4/ 1/57	11/12/56	I; 12 sessions 2 hr. twice weekly, Wednesdays, Saturdays	150
Clinical and Office Obstetrics	New York Polyclinic Medical School and Hospital 345 W. 50th St., New York	G	SC	Lab, Pt. Dem, LC, WR, Lec, AV	144	10/ 1/56 4/ 1/57	10/31/56	C; 24 days	100
564-A Infertility	New York University Post-Graduate Medical School 550 First Ave., New York	G	BC	Lab, Pt. Dem, Lec	21	12/ 3/56	12/ 5/56	C; 3 days	45
5611-A Special Observation Course	New York University Post-Graduate Medical School 550 First Ave., New York	G	MT	Pt. Dem, LC, WR	Unknown	Arranged		1 mo.	125
Obstetrics	State University of New York Upstate Medical Center 755 Irving Ave., Syracuse, N. Y.	G	SC	Pt. Dem, LC, WR, Sem, Lec, AV	40	Anytime		C; 5 days	25
Obstetrics	University of Nebraska College of Medicine 42nd and Dewey, Omaha; course at Lincoln General Hospital, Lincoln, Neb.	G	BC	Lec, Pan, O, AV	6	4/25/57	4/25/57	C; 1 day	10
Program to be Presented by the Cincinnati Obstetrical & Gynecological Society before the Southwestern Ohio Society of General Practitioners	The Southwestern Ohio Society of General Practitioners Sharon & Willow Aves., Glendale, Ohio; course at College of Medicine University of Cincinnati, Cincinnati	G	BC	Sem, Lec, Pan, O	4½	11/25/56	11/25/56	C; 1 day	10

OBSTETRICS AND GYNECOLOGY
(See also Psychsomatic Medicine)

Gynecology and Obstetrics	American College of Surgeons 40 E. Erie St., Chicago 1; Clinical Congress at San Francisco	S	SC	Sem, Lec, Pan, O, AV	15	10/ 8/56	10/12/56	C; 5 days	5
Obstetrics and Gynecology Postgraduate Course	State University of Iowa Iowa City	B	BC	Pt. Dem, Lec, Pan, O, AV	9	11/16/56	11/17/56	C; 1½ days	15
Obstetrics and Gynecology	University of Kansas Medical Center 39th and Rainbow Blvd., Kansas City, Ks.	B	BC	Lec, Pan, AV	21	11/ 1/56	11/ 3/56	C; 3 days	35
Obstetrics and Gynecology	University of Michigan Medical School Dept. of Postgraduate Medicine University Hospital, Ann Arbor, Mich.	G	BC	Pt. Dem, Lec, Pan, O, AV	18	1/24/57	1/26/57	C; 3 days	30
Obstetrics and Gynecology	University of Nebraska College of Medicine 42nd and Dewey, Omaha	G	BC	Pt. Dem, Sem, Lec, Pan, O, AV	15	1/17/57	1/19/57	C; 2½ days	25
Gynecology and Obstetrics including Manikin Obstetrics and Operative Gynecology (Cadaver)	New York Polyclinic Medical School and Hospital 345 W. 50th St., New York	G	SC	Lab, Pt. Dem, LC, WR, Cad, Sur, Sem, Lec, AV, EPP	400	10/ 1/56 4/ 1/57	11/30/56	C; 56 days	250
Culdoscopy	New York Polyclinic Medical School and Hospital 345 W. 50th St., New York	G	SCI	Lab, Pt. Dem, LC, Sem, Lec, AV	6	Arranged		I; 3 sessions 2 hrs. 3 times wk. Mondays, Wednesdays, Fridays	100
5610-A X-Ray Diagnosis in Obstetrics and Gynecology	New York University Post-Graduate Medical School 550 First Ave., New York	S	SC	Pt. Dem, Lec	35	10/22/56	10/26/56	C; 5 days	85
Obstetrics and Gynecology	Hahnemann Hospital 239 N. Broad St., Philadelphia	G	SCI	Pt. Dem, Lec, Pan, Sem, AV		9/56	Unknown	I; 2 hr. Wednesdays	50

OCCUPATIONAL MEDICINE

Aviation Medicine	University of California School of Medicine Los Angeles 24	G	BC	Lec, Pan, AV	21	10/24/56	10/26/56	C; 3 days	50
Conference (in Spanish) on Occupational Medicine and Toxicology	University of Miami School of Medicine 1100 Anastasia Ave., Coral Gables, Florida	G	SC	Lec, Pan	30	9/ 3/56	9/ 8/56	C; 5 days	Unknown
Symposium on Industrial Medicine	University of Miami School of Medicine 1100 Anastasia Ave., Coral Gables, Florida	G	BC	Lec, Pan, O	16	12/15/56	12/16/56	C; 2 days	20
Heart in Industry Conference IV	Chicago Heart Association 69 W. Washington St., Chicago; course at Morrison Hotel, Chicago	G	BC	Sem, Lec, Pan, O, AV	8	11/28/56	11/28/56	C; 1 day	Nil
Medicine	Tulane University School of Medicine 1430 Tulane Ave., New Orleans	B	BC	Unknown	16	4/ 4/57	4/ 5/57	C; 2 days	25
Industrial Medicine for General Physicians and Specialists	University of Minnesota School of Medicine Minneapolis 14	B	BC	Lec, O	18	4/15/57	4/17/57	C; 3 days	30
Industrial Medicine	University of Buffalo School of Medicine 3435 Main St., Buffalo, N. Y.	G	BC	Pt. Dem, LC, WR, Sem, Lec, Pan, O, AV	14	11/14/56	11/15/56	C; 2 days	30
Introduction to Occupational Medicine	Columbia University School of Public Health and Administrative Medicine 600 W. 168th St., New York; course at Columbia University College of Physicians and Surgeons, New York	G	SCI	Pt. Dem, Lec	12	9/15/56	12/ 1/56	I; 12 sessions 1 hr. weekly, Saturdays	Nil
488-A Occupational Medicine for Physicians	New York University Post-Graduate Medical School 550 First Ave., New York	G	SC	Sem, Lec, Pan	280	9/10/56	11/ 2/56	C; 40 days	300
482-A Industrial Hygiene	New York University Post-Graduate Medical School 550 First Ave., New York	G	SCI	Lab, Lec	Unknown	9/56		I; 15 days	75
4810-A Industrial Toxicology	New York University Post-Graduate Medical School 550 First Ave., New York	G	SCI	Lec	Unknown	9/56		I; 15 days	75
484-A Medical Aspects of Compensation	New York University Post-Graduate Medical School 550 First Ave., New York	G	SC	Lec, Pan	35	10/15/56	10/18/56	C; 5 days	45
486-A Air Pollution	New York University Post-Graduate Medical School 550 First Ave., New York	G	SC	Lec	70	11/26/56	12/ 7/56	C; 10 days	75
480-A Introduction to Radiological Safety	New York University Post-Graduate Medical School 550 First Ave., New York	G	SC	Lec	70	1/ 7/57 2/57	1/18/57	C; 10 days	75
480-B Radiological Safety Laboratory	New York University Post-Graduate Medical School 550 First Ave., New York	G	SC	Lab	70	1/21/57 2/57	2/ 1/57	C; 10 days	75
482-B Industrial Hygiene Laboratory	New York University Post-Graduate Medical School 550 First Ave., New York	G	SCI	Lab	Unknown	2/57		I; Unknown	75
489-A Chemical Methods in Industrial Hygiene	New York University Post-Graduate Medical School 550 First Ave., New York	G	SCI	Lab	Unknown	2/57		I; 15 days	75
Environmental Medicine in Industry and Home	Saint Luke's Hospital 11311 Shaker Blvd., Cleveland 4	G	BC	Lec, Pan, O, AV	14	11/ 1/56	11/ 2/56	C; 2 days	10
Occupational Radiation Protection	Robert A. Taft Sanitary Engineering Center 4676 Columbia Parkway, Cincinnati 26	G	SC	Lab, Lec, AV	60	1/28/57	2/ 8/57	C; 10 days	Unknown
Environmental Radiation Sanitation	Robert A. Taft Sanitary Engineering Center 4676 Columbia Parkway, Cincinnati 26	G	SC	Lab, Lec, AV	60	4/ 1/57	4/12/57	C; 10 days	Unknown
Seminars in Industrial Medicine	University of Cincinnati College of Medicine Cincinnati; course at Institute of Industrial Health Cincinnati	G	SCI	Pt. Dem, Sem	50	9/56	5/57	I; 50 sessions 1 hr. twice weekly, Fridays, Saturdays	Nil
Industrial Medicine	University of Cincinnati College of Medicine Cincinnati; course at Institute of Industrial Health Cincinnati	G	SCI	Pt. Dem, Sem, Lec	32	1/57	5/57	I; 16 sessions 2 hr. weekly	75
Psychiatry in Occupational Health	University of Cincinnati College of Medicine Cincinnati; course at Institute of Industrial Health Cincinnati	S	SC	Pt. Dem, Lec, AV	35	3/11/57	3/15/57	C; 5 days	75
Methods for the Evaluation of the Industrial Environment	University of Cincinnati College of Medicine Cincinnati; course at Institute of Industrial Health Cincinnati	S	SC	Lab, Lec	35	4/ 1/57	4/ 5/57	C; 5 days	75

Key will be found on page 1278.

OCCUPATIONAL MEDICINE—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Third Annual Postgraduate Course in Aviation Medicine	Ohio State University College of Medicine Columbus, Ohio	G	SC	Sem, Lec, Pan, O	40	9/10/56	9/15/56	C; 5 days	75
Industrial Medicine	Graduate School of Public Health University of Pittsburgh Terrace and Darragh Sts., Pittsburgh	S	SCI	Lec	20	11/19/56	1/30/57	I; 20 sessions 1 hr. weekly, day to be determined	20

OPHTHALMOLOGY

Basic Course in Ophthalmology	University of California School of Medicine Los Angeles 24	S	SCI	Lec, AV	50	10/17/56	5/22/57	I; 25 sessions 2 hr. weekly, Wednesdays	125
Ophthalmological Conference on Glaucoma	University of California Medical Center Second and Parnassus Aves., San Francisco	S	BC	Pt. Dem, Sem, Lec	17	9/20/56	9/22/56	C; 3 days	60
Ophthalmology	University of California Medical Center Second and Parnassus, San Francisco	G	BC	Lec	21	12/ 5/56	12/ 7/56	C; 3 days	60
Postgraduate Seminar in Ophthalmology	University of Colorado School of Medicine 4200 E. 9th Ave., Denver 20	B	BC	Lec, Pan	32	7/57	7/57	C; 4 days	50
Postgraduate Series in Ophthalmology	Yale University School of Medicine 333 Cedar St., New Haven, Conn.	S	SCI	Lec	8	11/16/56	3/29/57	I; 8 sessions 1 hr. weekly, Fridays	15
Postgraduate Course in Ophthalmology	Department of the Army, Office of the Surgeon General, Education and Training Division Washington 25, D. C.; course at Walter Reed Army Medical Center Washington 12, D. C.	B	BC	Sem, Lec, Pan, O	24	3/18/57	3/20/57	C; 3 days	Nil
Clinical Ophthalmology	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SC	Pt. Dem, LC, WR, Sur, O	50	Arranged		C; 12 days	50
Diagnosis and Treatment of Strabismus (Course I)	Northwestern University Medical School 303 E. Chicago Ave., Chicago 11	S	SC	LC, Lec	24	9/17/56	9/28/56	C; 10 days	100
Diagnosis and Treatment of Strabismus (Course II)	Northwestern University Medical School 303 E. Chicago Ave., Chicago 11	S	SCI	LC, Lec	200	Arranged		I; 100 sessions 2 hr. weekly, by arrangement	150
Ocular Pathology	Tulane University School of Medicine 1430 Tulane Ave., New Orleans	S	SC	Lab, WR, Lec	40	12/ 3/56	12/ 8/56	C; 5 days	100
Ophthalmology	University of Michigan Medical School Dept. of Postgraduate Medicine University Hospital, Ann Arbor, Mich.	S	BC	Lec, O, AV	18	4/22/57	4/24/57	C; 3 days	50
Ophthalmology for Specialists	Continuation Medical Education 1342 Mayo Memorial University of Minnesota, Minneapolis 14	S	BC	Lec, O	15	6/17/57	6/19/57	C; 3 days	30
Home Study Course in Ophthalmology	American Academy of Ophthalmology and Otolaryngology 100 First Ave. Building, Rochester, Minn.	S	HS(C)	Reading		9/ 1/56	6/30/57	10 mo.	20
Glaucoma with Special Emphasis on Technique of Gonioscopy	Brooklyn Eye and Ear Hospital 29 Green Ave., Brooklyn, N. Y.	S	BC	Pt. Dem, Lec, O, AV, EPP	15	11/19/56 5/20/57	11/21/56	C; 3 days	50
Combined Course in Ophthalmoscopy and External Eye Diseases	Joint Committee on Post-Graduate Education 1313 Bedford Ave., Brooklyn 16, N. Y.; course at Jewish Chronic Disease Hospital Brooklyn, N. Y.	G	SCI	Lec	16	4/57	6/57	I; 8 sessions 2 hr. weekly, Fridays	30
Ophthalmology (PM 62)	Montefiore Hospital 210th St. & Bainbridge Ave., New York 67	G	SCI	LC, WR, Lec	16	10/15/56	12/ 3/56	I; 8 sessions 2 hr. weekly, Mondays	30
Elementary Ophthalmoscopy (PM 60)	Montefiore Hospital 210th St. & Bainbridge Ave., New York 67	G	SCI	LC, Lec	18	1/ 9/57	3/ 5/57	I; 9 sessions 2 hr. weekly, Wednesdays	30
Ophthalmology	New York Polyclinic Medical School and Hospital 345 W. 50th St., New York	G	SC	Lab, Pt. Dem, LC, WR, Cad, Sur, Sem, Lec, AV, EPP	360	10/ 1/56 4/ 1/57	12/31/56	C; 72 days	300
Refraction	New York Polyclinic Medical School and Hospital 345 W. 50th St., New York	G	SC	Pt. Dem, LC, Sem, Lec, AV	72	10/ 1/56 4/ 1/57	10/31/56	C; 24 days	100
Operative Ophthalmology (Dissection)	New York Polyclinic Medical School and Hospital 345 W. 50th St., New York	G	SCI	Cad, Sur, AV, EPP	12	10/ 1/56	12/31/56	I; 6 sessions 2 hr. weekly, Wednesdays	160
Motor Anomalies	New York Polyclinic Medical School and Hospital 345 W. 50th St., New York	G	SCI	Lab, LC, Lec, AV	8	Arranged		I; 8 sessions 1 hr. weekly, Mondays	50

Physiologic Optics (Advanced)	New York Polyclinic Medical School and Hospital 345 W. 50th St., New York	G	SCI	Lab, Pt. Dem, LC, WR, Lec, AV	30	Arranged		I; 15 sessions 2 hr. 3 times a week, Mondays, Wednesdays, Fridays	100
578-A Ocular Expressions of Systemic Disease	New York University Post-Graduate Medical School 550 First Ave., New York	S	SC	Lec	15	9/17/56	9/21/56	C; 5 days	55
5714-A Histopathology	New York University Post-Graduate Medical School 550 First Ave., New York	S	SC	Lab, Lec	15	9/17/56	9/21/56	C; 5 days	100
5711-A Ophthalmoscopy	New York University Post-Graduate Medical School 550 First Ave., New York	S	SC	Pt. Dem, Lec, AV	15	9/24/56	9/28/56	C; 5 days	55
574-A Surgery of the Eye	New York University Post-Graduate Medical School 550 First Ave., New York	S	SC	Pt. Dem, Cad, Lec	42	10/29/56 3/25/57	11/ 3/56	C; 6 days	125
575-A Differential Diagnosis with the Slit Lamp (For Specialists)	New York University Post-Graduate Medical School 550 First Ave., New York	S	SC	Pt. Dem, Lec	20	11/ 2/56	11/ 6/56	C; 5 days	85
579-A Neuro-Ophthalmology	New York University Post-Graduate Medical School 550 First Ave., New York	S	SC	Lec	15	1/14/57	1/18/57	C; 5 days	55
571-A Motor Anomalies of the Eye (Part I) (For Specialists)	New York University Post-Graduate Medical School 550 First Ave., New York	S	SC	Pt. Dem, Lec	42	3/ 4/57	3/ 9/57	C; 6 days	100
572-A Motor Anomalies of the Eye (Part II) (For Specialists)	New York University Post-Graduate Medical School 550 First Ave., New York	S	SC	Pt. Dem, LC, Lec	35	3/11/57	3/15/57	C; 5 days	85
573-A Ophthalmic Plastic Surgery (For Specialists)	New York University Post-Graduate Medical School 550 First Ave., New York	S	SC	Pt. Dem, Lec	15	4/ 1/57	4/ 5/57	C; 5 days	85
Review Course in Ophthalmology	State University of N. Y. Upstate Medical Center, 766 Irving Avenue; course at Hotel Syracuse, Syracuse	S	BC	Lec, Pan, AV	15	12/ 7/56	12/ 8/56	C; 2 days	25
Graduate Seminars in Ophthalmology	University Hospitals Cleveland 6; course at Western Reserve University School of Medicine, Cleveland 6	S	SCI	Lec, AV	120	9/56	6/57	I; 30 sessions 4 hr. weekly, Tuesdays	Nil
Ophthalmology Conference	Ohio State University Columbus, Ohio	S	BC	LC, Sem, Lec, AV	16	3/ 4/57	3/ 5/57	C; 2 days	30
Postgraduate Convention of the Oregon Academy of Ophthalmology and Otolaryngology	Post-Graduate Convention of the Oregon Academy of Ophthalmology and Otolaryngology 603 Mayer Bldg., Portland 5, Oregon; course at University of Oregon Medical School Portland, Oregon	S	BC	Pt. Dem, Lec, Pan, O, AV	12	3/27/57	3/28/57	C; 2 days	60
Applied Refraction	The University of Texas Postgraduate School of Medicine Texas Medical Center, Houston 25, Texas	G	SCI	Lec	5	2/57	3/57	I; 5 sessions 1 hr. weekly, Mondays	Unknown
Ophthalmological Problems in General Practice	The University of Texas Postgraduate School of Medicine Texas Medical Center, Houston 25, Texas	G	BCI	Lec, AV	8	3/57		I; 4 sessions 2 hr. weekly, Tuesdays	15
OPHTHALMOLOGY AND OTOLARYNGOLOGY									
Midwinter Seminar on Ophthalmology and Otolaryngology	Division of Postgraduate Education College of Medicine, University of Florida; course at hotel to be announced	S	SC	Lec, O, AV	32	1/57	1/57	C; 5½ days	40
Ophthalmology and Otolaryngology	University of Kansas Medical Center 39th and Rainbow Blvd., Kansas City, Ks.	B	SC	Pt. Dem, Lec, Pan, O, AV	35	4/ 8/57	4/12/57	C; 5 days	60
Otolaryngology & Ophthalmology—including Cadaver EENT	New York Polyclinic Medical School & Hospital 345 W. 50th St., New York	G	SC	Lab, Pt. Dem, LC, WR, Cad, Sur, Sem, Lec, AV, EPP	480	10/ 1/56 4/ 1/57	12/31/56	C; 72 days	600
Gill Memorial Eye, Ear, and Throat Hospital Annual Spring Congress	Gill Memorial EENT Hospital 711 S. Jefferson St., Roanoke, Va.	S	SC	Lab, Pt. Dem, WR, Sur, Lec, Pan, O, AV	50	4/ 1/57	4/ 6/57	C; 6 days	75 for whole week 40 for first or second half only.

Key will be found on page 1278.

ORTHOPEDIC SURGERY
(See also Anatomy)

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Diseases and Injuries of Bones and Joints	College of Medical Evangelists 1720 Brooklyn Ave., Los Angeles 33	G	SC	Lec	120	7/ 1/57	7/26/57	C; 6 hr. daily for 20 days	100
872—Orthopedics in General Practice with Emphasis on Traumatic Conditions	University of Southern California School of Medicine, Postgraduate Division 2025 Zonal Ave., Los Angeles 33; course at Los Angeles County Hospital	G	BC	Pt. Dem, Lec, Pan, O, AV, EPP	23	Spring/57	Spring/57	C; 3 days	65
Pediatric Orthopedics	Tulane University School of Medicine 1430 Tulane Ave., New Orleans	S	SC	WR, Sem, Lec	40	2/ 4/57	2/ 9/57	C; 5 days	50
Orthopedic Surgery	American College of Surgeons (Postgraduate Courses) 40 E. Erie St., Chicago 1; Clinical Congress at San Francisco	S	BC	Sem, Lec, Pan, O, AV	12	10/ 8/56	10/11/56	C; 4 days	5
Orthopedic Surgery, 1 and 2	Harvard Medical School, Courses for Graduates 25 Shattuck St., Boston; course at Children's Hospital, Boston	S	SC	Lab, Pt. Dem, LC, WR, Sur, Lec	Variable	Arranged	Arranged	C; by arrangement	800 for 12 mo.
Orthopedic Surgery	Tufts University School of Medicine Postgraduate Division 171 Harrison Ave., Boston	G	BC	Pt. Dem, Lec, Pan, AV	14	2/14/57	2/16/57	C; 3 days	Unknown
Foot Disabilities (PM 81)	Hospital for Joint Diseases 1919 Madison Ave., New York 35	G	SCI	Pt. Dem, LC, Lec	18	1/ 3/57	2/28/57	I; 9 sessions 2 hr. weekly, Thursdays	100
Orthopedic Surgery (PM 80)	Hospital for Joint Diseases 1919 Madison Ave., New York 35	G	SCI	Pt. Dem, LC, Lec	66	3/ 7/57	5/16/57	I; 11 sessions 6 hr. weekly, Thursdays	100
Orthopedic Surgery for General Surgeons	New York Polyclinic Medical School & Hospital 345 W. 50th St., New York	G	SCI	LC, WR, Cad, Sur, Lec, AV	40	Arranged		I; 20 sessions 2½ hr. 3 times a week, Tuesdays, Thursdays, Fridays	100
Operative Orthopedics (Dissection)	New York Polyclinic Medical School & Hospital 345 W. 50th St., New York	G	SCI	Sur, Cad, Lec, EPP	10	Arranged		I; 10 sessions 1 hr. weekly, Thursdays	100
Advanced Orthopedics of the Foot	New York Polyclinic Medical School & Hospital 345 W. 50th St., New York	G	SCI	Lab, Pt. Dem, LC, WR, Sur, Lec, AV	8	Arranged		I; 8 sessions, 1 hr. weekly, Saturdays	100
584-A Orthopedics for the General Practitioner	New York University Post-Graduate Medical School, 550 First Ave., New York	G	SCI	LC, WR, Sem	16	10/ 9/56	12/ 4/56	I; 8 sessions 2 hr. weekly, Tuesdays	45
586-A Orthopedic Aspects of the Treatment of Rheumatic Disorders	New York University Post-Graduate Medical School, 550 First Ave., New York	G	SCI	Pt. Dem, LC, WR	20	10/10/56	12/12/56	I; 10 sessions 2 hr. weekly, Wednesdays	50
585-A Orthopedic Aspects of the Treatment of Rheumatic Disorders	New York University Post-Graduate Medical School, 550 First Ave., New York	G	BCI	Pt. Dem, LC, WR	21	3/19/57	4/ 2/57	I; 3 sessions 7 hr. weekly, Tuesdays	50
583-A Orthopedics in General Practice	New York University Post-Graduate Medical School, 550 First Ave., New York	G	BC	LC, WR, Sem	21	6/10/57	6/12/57	C; 3 days	55

OTOLARYNGOLOGY
(See also Anatomy, Ophthalmology and Otolaryngology, and Surgery)

Clinical Otolaryngology	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SC	Pt. Dem, LC, WR, Sur, O	50	Arranged		C; 12 days	50
Endaural Otologic Surgery	Northwestern University Medical School 303 E. Chicago Ave., Chicago 11	S	SC	Lab, Pt. Dem, Sur, Sem, Lec, Pan	172	2/27/57	3/25/57	C; 20 days	500
Audiology	Northwestern University Medical School 303 E. Chicago Ave., Chicago 11	S	SC	Lab, Pt. Dem, Lec	52	3/26/57	3/31/57	C; 6 days	100
Fellowship Fenestration Surgery	Northwestern University Medical School 303 E. Chicago Ave., Chicago 11	S	SC	Lab, Pt. Dem, LC, WR, Sur, Sem, Lec, Pan	960	Arranged		C; 80 days	500
Annual Otolaryngologic Assembly	University of Illinois, College of Medicine 1853 W. Polk St., Chicago 12	S	SC	Lab, Sur, Sem, Lec, Pan, Cad, O, AV	69	10/ 1/56	10/ 7/56	C; 7 days	125
Clinical and Anatomical Course in Otorhinolaryngology	Indiana University School of Medicine 1100 W. Michigan St., Indianapolis	S	SC	Lab, Lec, O, AV	115½	3/25/57	4/ 6/57	C; 13 days	250
Otolaryngology Conference	State University of Iowa Iowa City	B	BC	Pt. Dem, Lec, Pan, O, AV	9	11/ 2/56	11/ 3/56	C; 1½ days	15

Otolaryngology	University of Michigan Medical School Department of Postgraduate Medicine University Hospital, Ann, Arbor, Mich.	S	BC	Pt. Dem, Lec, Pan, O, AV	18	4/18/57	4/20/57	C; 3 days	50
Otolaryngology for Specialists	Continuation Medical Education 1342 Mayo Memorial, University of Minnesota, Minneapolis	S	BC	Lec, O	15	6/20/57	6/22/57	C; 3 days	30
Home Study Course in Otolaryngology	American Academy of Ophthalmology and Otolaryngology 100 First Ave. Building, Rochester, Minn.	S	HS(C)	Reading	Unknown	9/ 1/56	6/30/57	10 mo.	20
Medical Otolaryngology	Hansel Foundation 634 N. Grand Ave., St. Louis	S	SC	Lab, Pt. Dem, LC, Pan, O, AV, EPP	80	Arranged		C; 12 days	250
Histopathology of the Ear, Nose, and Throat (PM 31)	Columbia-Presbyterian Medical Center 630 W. 168th St., New York	S	SCI	Lab	32	4/ 9/57	5/30/57	I; 16 sessions 2 hr. twice weekly, Tuesday, Thursdays	100
Otolaryngologic Plastic Surgery	Manhattan General Hospital 307 Second Ave., New York	S	SC	Lab, Pt. Dem, LC, WR, Sur, Lec, O, AV, EPP	72	9/ 5/56	9/11/56	C; 7 days	150
Trans-Meatal Surgery (PM 30)	Mount Sinai Hospital Fifth Ave. and 100th St., New York 29	S	SC	Lab, Sur	40	9/10/56 4 /8/57	9/21/56	C; 10 days	250
Mobilization of Stapes (PM 31)	Mount Sinai Hospital Fifth Ave. and 100th St., New York 29	S	SC	Lab, Pt. Dem, Sur	120	9/24/56 3/18/57	10/12/56	C; 15 days	500
Combined course in (A) Indirect Laryngoscopy and Voice Rehabilitation and (B) Audiology (PM 32)	Mount Sinai Hospital Fifth Ave. and 100th St., New York 29	S	SC	Pt. Dem, LC, Sem	42	2/11/57	2/16/57	C; 6 days	150
Rhinoplasty and Otoplasty (PM 33)	Mount Sinai Hospital Fifth Ave. and 100th St., New York 29	S	SC	Lab, LC, Sur, Lec	14	7/13/57	7/27/57	C; 14 days	350
Clinical Otolaryngology	New York Polyclinic Medical School and Hospital 345 W. 50th St., New York	G	SC	Lab, Pt. Dem, LC, Lec, AV	336	10 /1/56 4 /1/57	12/31/56	C; 112 days	150
Operative Nose & Throat (Dissection)	New York Polyclinic Medical School and Hospital 345 W. 50th St., New York	G	SCI	Cad, Sur, EPP	24	10/ 1/56 4/ 1/57	11/15/56	I; 12 sessions 2 hr. twice weekly, Tuesdays, Thusdays	150
Head and Neck Dissection	New York Polyclinic Medical School and Hospital 345 W. 50th St., New York	G	SCI	Sur, Cad, EPP	18	Arranged		I; 9 sessions 2 hr. twice weekly Tuesdays, Thursdays	150
Advanced Otology	New York Polyclinic Medical School and Hospital 345 W. 50th St., New York	G	SCI	Lab, LC, Sur, Sem, Lec, O, AV, EPP	12	Arranged		I; 6 sessions 2 hr. 3 times a week Tuesdays, Thusdays, Saturdays	250
Head and Neck Dissection	New York Polyclinic Medical School and Hospital 345 W. 50th St., New York	G	SCI	Lec, Cad, EPP	24	Arranged		I; 12 sessions, 2 hr. twice weekly, Tuesdays, Thursdays	150
Operation Otology (Cadaver)	New York Polyclinic Medical School and Hospital 345 W. 50th St., New York	G	SCI	Sur, Lec, Cad, EPP	12	Arranged		I; 6 sessions, 2 hr. weekly, Tuesdays	100
Surgical Anatomy of Nose and Accessory Sinuses	New York Polyclinic Medical School and Hospital 345 W. 50th St., New York	G	SC	Lab, Pt. Dem, LC, WR, Sem, Lec, AV	48	Arranged		C; 24 days	150
597-A Audiology	New York University Post-Graduate Medical School 550 First Ave., New York	S	BC	Pt. Dem, Lec	21	9/24/56	9/26/56	C; 3 days	75
598-A Neuro-Otolaryngology	New York University Post-Graduate Medical School 550 First Ave., New York	S	BC	LC, Lec	21	9/26/56	9/28/56	C; 3 days	50
594-A Endaural Surgery	New York University Post-Graduate Medical School 550 First Ave., New York 16	S	SC	Pt. Dem, Cad, Lec	70	11/ 5/56 1/28/57	11/17/56	C; 10 days	200
5910-A Laryngology and Surgery of the Larynx and Neck	New York University Post-Graduate Medical School 550 First Ave., New York	S	SC	Lab, Cad, Lec	70	1/ 7/57	1/18/57	C; 10 days	250
Sixth Annual Teaching Day in Otolaryngology	State University of New York Upstate Medical Center 766 Irving Ave., Syracuse, N. Y.	S	BC	Sem, Lec, Pan, O, AV	8	Spring '57	Spring '57	C; 1 day	Unknown

Key will be found on page 1278.

OTOLARYNGOLOGY—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Postgraduate Course in Otology, Rhinology, Laryngology, Maxillo-Facial Surgery, Bronchoscopy, and Esophagoscopy	Frank E. Bunts Educational Institute 2020 E. 93rd St., Cleveland 6	S	BC	Lec, Pan, O, AV	10	2/27/57	2/28/57	C; 2 days	15
Postgraduate Convention of the Oregon Academy of Ophthalmology and Otolaryngology	Oregon Academy of Ophthalmology and Otolaryngology 603 Mayer Bldg., Portland 5, Ore.; course at University of Oregon Medical School, Portland, Ore.	S	BC	Pt. Dem, Lec, Pan, O, AV	12	3/25/57	3/26/57	C; 2 days	60
Laryngology and Laryngeal Surgery	Temple University School of Medicine and Hospital 3400 N. Broad St., Philadelphia 40	B	SC	Lab, Pt. Dem, LC, Sur, Sem, Lec, Pan, O, AV, EPP	80	11/ 5/56	11/16/56	C; 11 days	250

PATHOLOGY
(See also Gynecology, Malignant Disease, and Pediatrics)

General and Surgical Pathology	College of Medical Evangelists 1720 Brooklyn Ave., Los Angeles 33	G	SCI	Lab, Lec, Pan	194	10/ 2/56	6/ 4/57	I; 64 sessions 4 Hr. Tuesdays, 2 Hr. Thursdays	175
Orthopedic Pathology	University of Colorado School of Medicine 4200 E. 9th Ave., Denver 20	S	SCI	Lab, Lec	Unknown	9/56	6/57	I; Once Weekly 9 mo. Thursdays	10
Pathology of Diseases of Laboratory Animals	Department of the Army, Office of the Surgeon General, Education and Training Division, Washington 25, D. C.; course at Walter Reed Army Medical Center Washington 12, D. C.	B	SC	Lab, Lec	40	12/10/56	12/14/56	C; 5 days	Nil
Ophthalmic Pathology	Department of the Army, Office of the Surgeon General, Education and Training Division, Washington 25, D. C.; course at Walter Reed Army Medical Center Washington 12, D. C.	B	SC	Lab, Lec	40	3/25/57	3/29/57	C; 5 days	Nil
Application of Histochemistry to Pathology	Department of the Army, Office of the Surgeon General, Education and Training Division, Washington 25, D. C.; course at Walter Reed Army Medical Center Washington 12, D. C.	B	BC	Lab, Lec, O, EPP	24	5/ 6/57	5/ 8/57	C; 3 days	Nil
Neuropathology	University of Maryland School of Medicine Lombard and Greene Sts., Baltimore	S	SC	Lab, Sem	Unknown	Arranged	Arranged	6 mo. full time	210
Gynecological and Obstetrical Pathology	Joint Committee on Post-Graduate Education 1313 Bedford Ave., Brooklyn 16, N. Y.; course at Kings County Hospital Brooklyn, N. Y.	S	SCI	Lec, AV	20	3/57	5/57	I; 10 sessions 3 hr. weekly, Fridays	100
Surgical Pathology (PM 31)	Mount Sinai Hospital Fifth Ave. & 100th St., New York 29	G	SCI	Lab	30	1/19/57	4/27/57	I; 15 sessions 2 hr. weekly, Saturdays	100
Gynecological and Obstetrical Pathology (c)	New York Polyclinic Medical School and Hospital 345 W. 50th St., New York	G	SC	Lab, Pt. Dem, LC, WR, Sur, Sem, Lec, AV, EPP	30	10/ 1/56 4/ 1/57	10/15/56	C; 10 days	100
Urological Pathology (b)	New York Polyclinic Medical School and Hospital 345 W. 50th St., New York	G	SC	Lab, Pt. Dem, LC, WR, Sur, Sem, Lec, AV, EPP	30	10/ 1/56 4/ 1/57	10/15/56	C; 10 days	150
Surgical Pathology (a)	New York Polyclinic Medical School and Hospital 345 W. 50th St., New York	G	SC	Lab, Pt. Dem, LC, WR, Sur, Sem, Lec, AV, EPP	300	10/ 1/56 4/ 1/57	12/31/56	C; 72 days	500
General Pathology	New York Polyclinic Medical School and Hospital 345 W. 50th St., New York	G	SC	Unknown	Unknown	10/ 1/56	9/30/57	C; 261 days full time	Unknown
444-A Pathology for Surgeons	New York University Post-Graduate Medical School 550 First Ave., New York 16	S	SCI	Lab, Lec	16	10/ 1/56 4/ 1/57	11/26/56	I; 16 sessions 1 hr. twice weekly Mondays, Thursdays	75
445-A Histopathology for Gynecologists	New York University Post-Graduate Medical School 550 First Ave., New York 16	S	SCI	Lab, Lec	16	10/ 2/56 4/ 2/57	11/27/56	I; 16 Sessions 1 hr. Twice weekly Tuesdays Fridays	75

Surgical Pathology	University of Pittsburgh School of Medicine 3941 O'Hara St., Pittsburgh; course at Veterans Hospital, Pittsburgh	S	SCI	Lec, AV	13	1/ 9/57	4/ 3/57	I; 13 sessions 1 hr. weekly Wednesdays	Unknown
Postgraduate Refresher Course in Surgical Pathology and Pathologic Anatomy	University of Texas Post-Graduate School of Medicine 213 West Ave. G, Temple, Tex.; course at Scott and White Memorial Hospitals, Scott, Sherwood and Brindley Foundation Temple, Tex.	S	SC	Lab, Pan, AV, EPP	88	Unknown	Unknown	C; 12 days	25
Surgical Pathology Refresher Course	Memorial Hospital of Laramie County Cheyenne, Wyo.	S	SCI	Pt. Dem, Sem, O, AV, EPP	60	Arranged		I; 20 sessions 3 hr. weekly	Nil
				PEDIATRICS					
Pediatrics	University of California School of Medicine Los Angeles 24	G	BC	Lec, Pan, AV	15	10/25/56	10/27/56	C; 2½ days	50
864—Pediatric Clinics for General Practitioners	University of Southern California School of Medicine Post-Graduate Division 2025 Zonal Ave., Los Angeles 33; course at Children's Hospital Los Angeles	G	SCI	Pt. Dem, LC, Lec	30	Fall '56	Spring '57	I; Tuesdays	50
General Pediatrics	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SCI	Pt. Dem, LC, WR, Sem, Lec, O	20	9/19/56 3/20/57	11/21/56	I; 10 sessions, 2 hr. weekly, Wednesdays	100
Course V Pediatrics	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SC	Pt. Dem, LC, WR, Sem, Lec, O	70	5/13/57	5/25/57	C; 12 days	150
Intensive Course in Neuromuscular Diseases of Children with Special Emphasis on Cerebral Palsy	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SC	Lab, Pt. Dem, LC, WR, Sem, Lec, O, AV	80	6/17/57	6/29/57	C; 12 days	225
Clinical Pediatrics	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SC	Pt. Dem, LC, WR, Sem, O	60	Arranged		C; 12 days	60
Course IV Pediatrics	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SC	Lab, Pt. Dem, LC, WR, Sem, Lec, O, AV	1500	Arranged		C; 12 mo.	750
Clinical Pediatrics	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SC	Pt. Dem, LC, WR, Sem, O	120	Arranged		C; 24 days	100
Postgraduate Course in Pediatrics	Indiana University School of Medicine 1100 W. Michigan St., Indianapolis	G	BC	Lec	4	9/26/56	9/26/56	C; 1 day	10
Pediatrics Postgraduate Course	State University of Iowa Iowa City	B	BC	Pt. Dem, Lec, Pan, O, AV	10	9/18/56	9/19/56	C; 1½ days	15
Pediatrics	University of Kansas Medical Center 39th and Rainbow Blvd., Kansas City, Kan.	B	BC	Pt. Dem, Lec, Pan, O, AV	21	3/11/57	3/13/57	C; 3 days	35
Pediatric Postgraduate Course	University of Louisville Medical Center 101 W. Chestnut St., Louisville, Ky.	G	SCI	Sem, Lec, Pan, O, AV	24	5/ 7/57	6/25/57	I; 8 sessions 3 hr. weekly, Tuesdays	20
Pediatrics 1	Harvard Medical School Courses for Graduates 25 Shattuck St., Boston; course at Massachusetts General Hospital, Boston	S	SC	Lab, Pt. Dem, LC, WR, Sem, Lec	Unknown	10/ 1/56	5/31/57	C; 8 mo.	800
Pediatrics 2	Harvard Medical School Courses for Graduates 25 Shattuck St., Boston; course at Children's Hospital, Boston	S	SC	Pt. Dem, LC, WR, Lec	Unknown	10/ 1/56 2/ 4/57	1/25/57	C; 101 Days	500
Pediatrics 3	Harvard Medical School, Courses for Graduates 25 Shattuck St., Boston 15; course at Massachusetts General Hospital, Fruit St., Boston	G	SC	Pt. Dem, LC, Lec, O, AV	46	Unknown		C; 8 days	100
Pediatric Metabolism and Endocrinology	Harvard Medical School Courses for Graduates 25 Shattuck St., Boston; course at Massachusetts General Hospital, Boston	G	BC	Pt. Dem, LC, Lec, O, AV	17	Unknown	Unknown	C; 3 days	50
Pediatrics 2A	Harvard Medical School Courses for Graduates 25 Shattuck St., Boston; course at Children's Hospital, Boston	S	SC	Lab, Pt. Dem, LC, WR, Lec	Unknown	Arranged	Arranged	C; by arrangement	200 for 3 mo.
Pediatrics	Tufts University School of Medicine Postgraduate Division 171 Harrison Ave., Boston	G	BC	Pt. Dem, Lec, Pan, AV	14	3/21/57	3/23/57	C; 3 days	20
Pediatrics	University of Michigan Medical School Department of Postgraduate Medicine University Hospital, Ann Arbor, Mich.	G	BC	Pt. Dem, Lec, Pan, O, AV	18	1/21/57	1/23/57	C; 3 days	30
Pediatrics for Pediatricians	Continuation Medical Education, 1342 Mayo Memorial, University of Minnesota, Minneapolis 14	S	BC	Lec, O	15	10/ 4/56	10/ 6/56	C; 3 days	30

Key will be found on page 1278.

PEDIATRICS—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Pediatrics for General Physicians	Continuation Medical Education 1342 Mayo Memorial, University of Minnesota, Minneapolis 14	G	SC	Lec, O	15	3/ 4/57	3/ 6/57	C; 3 days	30
Pediatrics Seminar	University of Nebraska College of Medicine 42nd and Dewey, Omaha	G	BC	Pt. Dem, LC, WR, Sem, Lec, O, AV	12	4/ 1/57	4/ 2/57	C; 2 days	20
Pediatric Clinical Seminar	Albany Medical College 47 New Scotland Ave., Albany, N. Y.	G	BC	Sem, Lec, Pan	6	12/ 6/56	12/ 6/56	C; 1 day	10
Clinical Pediatrics	Albany Medical College 47 New Scotland Ave., Albany, N. Y.	G	SCI	Pt. Dem, WR, Sem, Lec	21	3/28/57	5/ 2/57	I; 6 sessions 3½ hr. weekly, Thursdays	25
Pediatrics	University of Buffalo School of Medicine 3435 Main St., Buffalo, N. Y.	G	SCI	Pt. Dem, LC, WR, Sem, Lec, Pan, O, AV	24	3/13/57	4/17/57	I; 6 sessions 4 hr. weekly, Wednesdays	50
Tumors of Childhood	Memorial Center for Cancer and Allied Diseases 444 E. 68th St., New York	B	SCI	Pt. Dem, LC, WR, Sem, Lec, O, AV	16	9/56 11/56 2/57 4/57	11/56	I; 8 sessions 2 hr. weekly, Fridays	Nil
Postgraduate Course in Pediatric Oncology	Memorial Center for Cancer and Allied Diseases 444 E. 68th St., New York	B	BC	Pt. Dem, LC, WR, Sem, Lec, O, AV	24	4/24/57	4/26/57	C; 3 days	35
Bureau of Child Health Pre-Service Training Course	New York City Department of Health 125 Worth St., New York; course at Kips Bay Health Center, New York	G	SC	Lec, EPP	75	9/56 2/57		C; 3 hrs. daily for 25 days	Nil
Bureau of School Health Pre-Service Training Course	New York City Department of Health 125 Worth St., New York 13; course at Kips Bay Health Center, New York	G	SC	Lec, EPP	75	10/ 8/56 4/15/57	11/26/56	C; 30 days	Nil
Growth and Development of Personality from Infancy through Adolescence	Department of Health 125 Worth St., New York	G	SCI	Lec	15	2/57		I; 12 sessions ½ hr. twice weekly, Thursdays, Fridays	Nil
Pediatrics	New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York	G	SC	Lab, Pt. Dem, LC, WR, Lec	144	Arranged		C; 24 days	100
614-A Review of Clinical Pediatrics	New York University Post-Graduate Medical School, 550 First Ave., New York 16	G	SC	Pt. Dem, LC, Lec	42	9/17/56 3/ 4/57	9/22/56	C; 6 days	55
6111-A Symposium on Tuberculosis and other Pulmonary Diseases in Children	New York University Post-Graduate Medical School, 550 First Ave., New York 16	G	SC	Pt. Dem, LC, WR, Lec	35	10/15/56 4/22/57	10/19/56	C; 5 days	65
611-A Clinical Pediatrics	New York University Post-Graduate Medical School, 550 First Ave., New York 16	G	SCI	Pt. Dem, LC, WR, Lec	120	10/29/56	1/ 4/57	I; 30 sessions 4 hr. 3 times weekly, Mondays, Wednesdays, Fridays	125
615-A Pediatric Endocrinology and Related Metabolism	New York University Post-Graduate Medical School, 550 First Ave., New York 16	G	BC	Pt. Dem, Lec, AV	28	11/12/56	11/15/56	C; 4 days	60
618-A Pediatric Cardiology	New York University Post-Graduate Medical School, 550 First Ave., New York 16	G	SC	Lec	35	12/ 3/56	12/ 7/56	C; 5 days	55
613-A Pediatric Refresher Course	New York University Post-Graduate Medical School, 550 First Ave., New York 16	G	SC	LC, Lec	70	1/14/57 4/ 1/57	1/25/57	C; 10 days	125
Problems in Pediatric Practice	State University of New York Upstate Medical Center, 766 Irving Ave., Syracuse, N. Y.	B	BC	Pt. Dem, Sem, O, AV	12	Spring	Spring	C; 2 days	10
Southern Pediatric Seminar	Southern Pediatric Seminar Saluda, N. C.	G	SC	Pt. Dem, Sem, Lec, Pan	80	7/ 8/57	7/20/57	C; 13 days	50
Southern Pediatric Seminar	Southern Pediatric Seminar Saluda, N. C.	G	SC	Sem, Lec, Pan, AV	Unknown	7/22/57	7/27/57	C; 6 days	25
Practical Applications of the Principles of Immunization	Academy of Medicine of Cleveland & Cuyahoga County Medical Society 2009 Adelbert Rd., Cleveland 6	B	BC	Lec, Pan	3	3/15/57		C; 1 day	Nil
Current Therapy in Pediatric Practice	Frank E. Bunts Educational Institute 2020 E. 93rd St., Cleveland 6	G	BC	Lec, Pan, O, AV	12	9/26/56	9/27/56	C; 2 days	15
Pediatrics in General Practice	Hahnemann Medical College and Hospital 230 N. Broad St., Philadelphia	G	SCI	Pt. Dem, Lec, Pan, AV		9/56	Unknown	I; 2 hr. Wednesdays	50
Pediatrics	The University of Texas Post-Graduate School of Medicine Texas Medical Center, Houston, Tex.; course at Scott and White Clinic-Hospitals, Temple, Tex.	G	MT	Lab, Pt. Dem, LC, WR	Unknown	9/56	8/57	First Monday of each month	25

Postgraduate Refresher Course in Pediatrics	University of Texas Post-Graduate School of Medicine 213 W. Avenue G, Temple, Tex.; course at Scott and White Memorial Hospitals, Scott, Sherwood and Brindley Foundation, Temple, Tex.	G	SC	Pt. Dem, LC, WR, EPP	176	1/57	12/57	C; 24 days a month	25
PERIPHERAL VASCULAR DISEASE									
Treatment of Varicose Veins	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	BC	Lab, Pt. Dem, LC, Sur, Lec, O	10	9/10/56 10/ 8/56 11/12/56 12/10/56 2/ 6/57 3/ 4/57 4/29/57 6/10/57	9/12/56	C; 2 days	50
Varicose Veins; The Peripheral System	College of Medical Evangelists 1720 Brooklyn Ave., Los Angeles 33	G	SCI	Lec, Pan	14	1/15/57	2/26/57	I; 7 sessions 2 hr. weekly, Tuesdays	30
Peripheral Vascular Diseases	Joint Committee on Post-Graduate Education 1313 Bedford Ave., Brooklyn 16, N. Y.; course at Coney Island Hospital, Brooklyn, New York	G	SCI	Pt. Dem, Lec	10	10/56	12/56	I; 10 sessions 1 hr. weekly, Mondays	20
Peripheral Vascular Diseases	Joint Committee on Post-Graduate Education 1313 Bedford Ave., Brooklyn 16; course at Jewish Hospital, Brooklyn	G	SCI	LC, Lec	10	4/57	5/57	I; 10 sessions 1 hr. twice weekly, Mondays, Fridays	20
Medicine (PM 65)	Montefiore Hospital 210th St. & Bainbridge Ave., New York	G	SCI	Lab, Pt. Dem, LC, WR, Lec, AV	84	9/20/56	3/28/57	I; 28 sessions 3 hr. weekly, Thursdays	125
5417-A Peripheral Vascular Diseases	New York University Post-Graduate Medical School, 550 First Ave., New York	G	SC	Pt. Dem, LC, Lec	35	11/26/56	11/30/56	C; 5 days	55
5418-A Peripheral Vascular Diseases	New York University Post-Graduate Medical School, 550 First Ave., New York	G	SCI	Pt. Dem, Lec	16	4/ 9/57	5/28/57	I; 8 sessions 2 hr. weekly, Tuesdays	45
PHYSICAL MEDICINE AND REHABILITATION									
Rehabilitation	Tufts University School of Medicine Postgraduate Division 171 Harrison Ave., Boston	G	BC	Pt. Dem, Lec, Pan, AV	14	2/28/57	3/ 2/57	C; 3 days	20
The Essentials of Lower Extremity Bracing	American Congress of Physical Medicine and Rehabilitation 30 N. Michigan Ave., Chicago; course at Ambassador Hotel, Atlantic City, N. J.	S	BC	Lec, O, AV	2	9/10/56	9/10/56	C; 1 day	2/hr.
A Guide for Medical Writing	American Congress of Physical Medicine and Rehabilitation 30 N. Michigan Ave., Chicago; course at Ambassador Hotel, Atlantic City, N. J.	S	BC	Lec, O, AV	2	9/10/56	9/10/56	G; 1 day	2/hr.
Intensive Course in Physical Medicine and Rehabilitation	University of Buffalo School of Medicine 3435 Main St., Buffalo, N. Y.	G	SCI	Pt. Dem, LC, WR, Sem, Lec, Pan, O, AV, EPP	120	9/26/56	2/27/57	I; 20 sessions 6 hr. weekly, Wednesdays	300
Physical Medicine and Rehabilitation of Clinical Practice	University of Buffalo School of Medicine 3435 Main St., Buffalo, N. Y.	G	BC	Pt. Dem, LC, WR, Sem, Lec, Pan, O, AV, EPP	14	10/31/56	11/ 1/56	C; 2 days	30
Physical Medicine and Rehabilitation	New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York	G	SC	Pt. Dem, LC, Lec, AV	144	Arranged		C; 24 days	100
621-A Physical Medicine and Rehabilitation	New York University Post-Graduate Medical School, 550 First Ave., New York	S	SC	Pt. Dem, Lec	70	1/ 2/57	1/15/57	C; 10 days	100
Considerations of Pain Control, Physical and Pyschological	American College of Physical Medicine 30 N. Michigan Ave., Chicago; course at Ambassador Hotel, Atlantic City, N. J.	S	BC	Lec, O, AV	2	9/11/56	9/12/56	C; 2 days	2/hr.
PHYSIOLOGY (See also Internal Medicine)									
Pathological Physiology	University of California School of Medicine Los Angeles 24	G	SCI	Lec, AV	24	1/28/57	4/15/57	I; 12 sessions 2 hr. weekly, Mondays	50
Basic Science—Applied Physiology	San Diego County General Hospital North End of Front St., San Diego 3, Calif.	S	SCI	Lec, Pan, AV	24	11/56	1/57	I; 12 sessions 2 hr. weekly, Thursdays	Nil

Key will be found on page 1278.

PHYSIOLOGY—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Clinical Physiology, A Basic Course	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SCI	Lec, O	20	9/19/56 3/20/57	11/21/56	I; 10 sessions 2 hr. weekly, Wednesdays	100
Normal and Pathological Physiology (PM 32)	Mount Sinai Hospital Fifth Ave. & 100th St., New York 29	G	SCI	Lec	52	10/17/56	4/17/57	I; 26 sessions 2 hr. weekly, Wednesdays	150
Physiology of the Digestive Tract (PM 30)	Mount Sinai Hospital Fifth Ave. & 100th St., New York 29	G	SCI	Lec	36	1/ 9/57	5/ 8/57	I; 18 sessions 2 hr. weekly, Wednesdays	100

POLIOMYELITIS

A Seminar in Comprehensive Patient Care in Neuromuscular Disabilities	Respiratory Center for Poliomyelitis Rancho Los Angeles Hospital Hondo, Calif.; course at Orthopaedic Hospital, 2400 S. Flower St., Los Angeles	G	SC	Pt. Dem, Sem, Lec, Pan, AV	31	10/22/56	10/26/56	C; 5 days	15
Physical Therapy and Occupational Therapy in the Care of Poliomyelitis	Georgia Warm Springs Foundation Warm Springs, Ga.	G	SC	Pt. Dem, LC, Lec, Pan, O, Av, EPP	40	10/ 1/56 1/ 7/57 4/ 1/57	10/ 5/56	C; 5 days	Nil
Physical Therapy and Occupational Therapy in the Care of Poliomyelitis	Georgia Warm Springs Foundation Warm Springs, Ga.	G	SC	Pt. Dem, LC, Lec, Pan, O, Av, EPP	300	10/56 1/ 7/57 4/ 1/57	12/21/56	C; 3 mo.	Nil
Physical Therapy and Occupational Therapy in the Care of Poliomyelitis	Georgia Warm Springs Foundation Warm Springs, Ga.	G	SC	Pt. Dem, LC, Lec, Pan, O, Av, EPP	515	10/56 1/ 7/57 4/ 1/57	3/29/57	C; 6 mo.	Nil
Poliomyelitis Refresher Course for Physicians	Children's Medical Center 300 Longwood Ave., Boston	G	SC	Pt. Dem, LC, WR, Sem, Lec, Pan, O, AV	40	5/20/57 7/29/57	5/24/57	C; 5 days	50
Acute Treatment and Rehabilitation of Paralytic Respiratory Failure	University of Washington School of Medicine Seattle 5	G	BC	Pt. Dem, Lec, Pan, O	14	8/57	8/57	C; 2 days	20

PROCTOLOGY

Proctoscopy & Sigmoidoscopy	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	BCI	Pt. Dem, LC, Sur, Lec, O, EPP	9	9/11/56 10/ 9/56 11/13/56 1/ 8/57 2/ 5/57 3/12/57 4/16/57 5/14/57 6/ 4/57	9/25/56	I; 3 sessions 3 hr. weekly, Tuesdays	50
Proctology	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SCI	Lec, O	10	10/24/56 3/13/57	11/21/56	I; 5 sessions, 2 hr. weekly, Wednesdays	100
Proctology for General Physicians	Continuation Medical Education 1342 Mayo Memorial, University of Minnesota Minneapolis 14	G	SC	Lec, O, Sur	30	5/13/57	5/17/57	C; 5 days	50
Proctology	Joint Committee on Post-Graduate Education 1313 Bedford Ave., Brooklyn 16, N. Y.; course at Jewish Hospital, Brooklyn, N. Y.	G	SCI	LC, Lec, AV	24	10/56 4/57	12/56	I; 12 sessions 2 hr. twice weekly. Mondays and Fridays	40
Office Proctology (PM30)	Mount Sinai Hospital Fifth Ave. and 100th St., New York	G	BC	Pt. Dem, LC, Sem	14	11/12/56 2/18/57	11/13/56	C; 2 days	50
Proctology, Gastroenterology, with Operative Proctology (Cadaver)	New York Polyclinic Medical School and Hospital 345 W. 50th St., New York	G	SC	Lab, Pt. Dem, LC, WR, Sur, Cad, Lec, AV, EPP	150	10/ 1/56 4/ 1/57	11/12/56	C; 30 days	200
Clinical Proctology	New York Polyclinic Medical School and Hospital 345 W. 50th Street, New York	G	SC	Pt. Dem, LC, Lec, AV	48	10/ 1/56 4/ 1/57	10/31/56	C; 24 days	75
Clinical Proctology and Gastroenterology	New York Polyclinic Medical School and Hospital 345 W. 50th St., New York	G	SC	Lab, Pt. Dem, LC, WR, Lec, AV	100	10/ 1/56 4/ 1/57	11/12/56	C; 30 days	100
Proctology (Clinical and Cadaver)	New York Polyclinic Medical School and Hospital 345 W. 50th St., New York	G	SC	Lab, Pt. Dem, LC, WR, Cad, Sur, Lec, AV, EPP	90	10/ 1/56 4/ 1/57	11/15/56	C; 30 days	175
Proctology	The University of Texas Postgraduate School of Medicine Texas Medical Center, Houston, Tex.; course at Scott and White Clinic-Hospitals, Temple, Tex.	G	SC	Lab, WR, Sur	Unknown	Scheduled on request		C; 12 days	25

Postgraduate Refresher Course in Proctology	The University of Texas Postgraduate School of Medicine 213 West Ave. G, Temple, Tex.; course at Scott and White Memorial Hospitals, Scott, Sherwood and Brindley Foundation, Temple, Tex.	G	SC	LC, Sur, O	88	Unknown	Unknown	C; 12 days	25
PSYCHIATRY									
Treatment of Emotional Problems in Office Practice Advanced Course	University of California School of Medicine Los Angeles 24	G	SCI	Lec	24	9/20/56	12/13/56	I; 12 sessions, 2 hr. weekly, Thursdays	75
Treatment of Emotional Problems in Office Practice—Basic Course	University of California School of Medicine Los Angeles 24	G	SCI	Lec	24	1/ 3/57	3/21/57	I; 12 sessions, 2 hr. weekly, Thursdays	50
Seminars on the Psychological Aspects of Medical Practice	University of California Medical Center Second and Parnassus, San Francisco	G	SCI	Lec	20	9/56	12/56	I; 10 sessions, 2 hr. weekly, Wednesdays	35
Clinical Psychology	Program Director, 10th Conn. Postgraduate Seminar in Psychiatry and Neurology, Connecticut State Hospital Middletown, Conn.; course at Yale University School of Medicine 333 Cedar St., New Haven, Conn.	S	BCI	Lec, O	4	11/21/56	12/ 3/56	I; 4 sessions, 1 hr. weekly, Mondays	Nil
Basic Psychiatry	Program Director, 10th Connecticut Postgraduate Seminar in Psychiatry and Neurology, Connecticut State Hospital Middletown, Conn.	S	SCI	Lec, O, AV	40	1/ 7/57	3/ 4/57	I; 27 sessions, 1½ hr. weekly, Mondays	Nil
Child Psychiatry	Program Director, 10th Connecticut Postgraduate Seminar in Psychiatry and Neurology, Connecticut State Hospital Middletown, Conn.; course at Yale University School of Medicine New Haven, Conn.	S	SCI	Lec, O, AV	18	3/11/57	4/15/57	I; 12 sessions, 1½ hr. weekly, Mondays	Nil
Symposium on Preventive and Social Psychiatry	Department of the Army Office of the Surgeon General, Education and Training Division, Washington 25, D. C.; course at Walter Reed Army Medical Center, Washington 12, D. C.	B	BC	Sem, Lec, Pan, O	24	4/15/57	4/17/57	C; 3 days	Nil
The Medical Practitioner's Contributions Toward Healthy Emotional Development	North Shore Health Resort 225 Sheridan Rd., Winnetka, Ill.	G	SCI	Sem, Lec, O, AV	18	10/ 3/56	6/ 5/57	I; 9 sessions 2 hr. monthly, first Wednesdays	Nil
Maintaining Emotional Health	The Menninger Foundation Topeka, Kan.	S	SC	Pt. Dem, Sem, Lec, Pan, O, AV	40	3/ 5/57	3/ 8/57	C; 5 days	250
Institute of Psychiatric Treatment	Boston State Hospital 591 Morton St., Boston	S	BC	Pt. Dem, Sem, Lec, O, EPP	25	9/27/56	9/29/56	C; 3 days	35
Psychiatric Principles in General Practice	Center for Continuation Study 1342 Mayo Memorial, University of Minnesota, Minneapolis; course at Douglas Lodge, Itasca State Park, Minn.	G	BC	Lec, O	18	9/ 5/56	9/ 7/56	C; 3 days	130 includes lodging and food expenses
Psychiatric Aspects in General Medicine	University of Nebraska College of Medicine 42nd and Dewey, Omaha	G	BC	Pt. Dem, Sem, Lec, Pan, O, AV	15	12/ 6/56	12/ 8/56	C; 2½ days	25
Child Psychiatry (Advanced)	Joint Committee on Post-Graduate Education 1313 Bedford Ave., Brooklyn 16, N. Y.; course at Kings County Hospital, Brooklyn, N. Y.	S	SCI	Pt. Dem, Lec	10	10/56	12/56	I; 10 sessions 1 hr. weekly, Mondays	20
Child Psychiatry	Joint Committee on Post-Graduate Education 1313 Bedford Ave., Brooklyn 16, N. Y.; course at Kings County Hospital, Brooklyn, N. Y.	G	SCI	Lec	10	4/57	6/57	I; 10 sessions 1 hr. weekly, Mondays	20
Fundamentals of Psychoanalytic Technique	American Institute for Psychoanalysis 220 W. 98th St., New York	S	SCI	Lec	30	9/10/56	2/ 4/57	I; 20 sessions 1½ hr. weekly, Mondays	80
The Dreaming Process	American Institute for Psychoanalysis 220 W. 98th St., New York	S	SCI	Sem, Lec	15	9/17/56	11/19/56	I; 10 sessions 1½ hr. weekly, Mondays	40
Continuous Case Seminar	American Institute for Psychoanalysis 220 W. 98th St., New York	S	SCI	Sem	15	9/18/56	11/27/56	I; 10 sessions 1½ hr. weekly, Tuesdays	40
Readings in Psychoanalysis Part II. The Works of Freud	American Institute for Psychoanalysis 220 W. 98th St., New York 25	S	SCI	Lec	15	9/18/56	11/27/56	I; 10 sessions 1½ hr. weekly, Tuesdays	30
Clinical Conferences on Psychoanalytic Case Histories 11	American Institute for Psychoanalysis 220 W. 98th St., New York	S	SCI	Sem	15	9/21/56	11/23/56	I; 10 sessions 1½ hr. weekly, Fridays	30

Key will be found on page 1278.

PSYCHIATRY—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Clinical Conferences in Psychoanalysis	American Institute for Psychoanalysis 220 W. 98th St., New York	S	SCI	Sem	15	9/21/56	11/23/56	I; 10 sessions 1½ hr. weekly, Fridays	40
Group Psychodynamics and Group Psychoanalysis	American Institute for Psychoanalysis 220 W. 98th St., New York; course at New York School for Social Research, New York		SCI	Lec	22½	9/24/56	1/14/57	I; 15 sessions 1½ hr. weekly, Mondays	24
A Basic Orientation in Psychoanalysis	American Institute for Psychoanalysis 220 W. 98th St., New York; course at New York School for Social Research, New York	S	SCI	Lec	22½	9/25/56	1/22/57	I; 15 sessions 1½ hr. weekly, Tuesdays	24
Seminar in Child Therapy-Psychoanalysis	American Institute for Psychoanalysis 220 W. 98th St., New York	S	SCI	Sem, Lec	10½	11/26/56	1/21/57	I; 7 sessions 1½ hr. weekly, Mondays	21
Clinical Conferences on Case Histories 1	American Institute for Psychoanalysis 220 W. 98th St., New York	S	SCI	Sem	15	11/30/56	2/ 8/57	I; 10 sessions 1½ hr. weekly, Fridays	30
Readings in Psychoanalysis Part III	American Institute for Psychoanalysis 220 W. 98th St., New York	S	SCI	Lec	22½	2/ 4/57	6/ 3/57	I; 15 sessions 1½ hr. weekly, Mondays	45
Theory of Neurosis	American Institute for Psychoanalysis 220 W 98th St., New York	S	SCI	Lec	18	2/ 5/57	4/23/57	I; 12 sessions 1½ hr. weekly, Tuesdays	36
The Psychoanalytic Process	American Institute for Psychoanalysis 220 W. 98th St., New York	S	SCI	Sem, Lec	22½	2/ 5/57	5/21/57	I; 15 sessions 1½ hr. weekly, Tuesdays	60
Neuroses and Psychoses	American Institute for Psychoanalysis 220 W. 98th St., New York; course at New School for Social Research, New York	S	SCI	Lec	22½	2/ 5/57	5/21/57	I; 15 sessions 1½ hr. weekly, Tuesdays	24
Workshop on Dreams	American Institute for Psychoanalysis 220 W. 98th St., New York	S	SCI	Sem	15	2/ 8/57	4/19/57	I; 10 sessions 1½ hr. weekly, Fridays	40
The Psychoanalytic Relationship	American Institute for Psychoanalysis 220 W. 98th St., New York	S	SCI	Sem	22½	2/11/57	6/ 3/57	I; 15 sessions 1½ hr. weekly, Mondays	60
Maturing: Fulfillment and Frustration	American Institute for Psychoanalysis 220 W. 98th St., New York; course at New School for Social Research, New York	S	SCI	Lec	22½	2/11/57	5/20/57	I; 15 sessions 1½ hr. weekly, Mondays	24
Psychoanalytical Contributions to Psychiatry	American Institute for Psychoanalysis 220 W. 98th St., New York	S	SCI	Lec	22½	2/15/57	6/ 7/57	I; 15 sessions 1½ hr. weekly, Fridays	45
PM-1 Psychiatry	Columbia University College of Physicians and Surgeons 630 W. 168th St., New York 32; course at New York State Psychiatric Institute, New York 32	S	SC	Lab, Pt. Dem, Sem, Lec	350	10/ 1/56	12/ 7/56	C; 50 days	Unknown
725 Psychiatric Film Showing	Postgraduate Center for Psychotherapy 218 E. 70th St., New York	G	SCI	Sem, AV	Unknown	10/ 1/56 2/18/57	1/15/57	I; 8 sessions 1½ hr. weekly, Mondays	Nil
763 The Development of Psychoanalytic Thinking	Postgraduate Center for Psychotherapy 218 E. 70th St., New York	S	SCI	LC, Lec	22½	10/ 1/56 2/11/57	1/22/57	I; 15 sessions 1½ hr. weekly, Mondays	40
704 Continuous Case Seminar	Postgraduate Center for Psychotherapy 218 E. 70th St., New York	S	SCI	LC, Sem	22½	10/ 2/56	1/22/57	I; 15 sessions 1½ hr. weekly, Tuesdays	40
715 Introduction to Psychotherapy & Psychotherapy Techniques	Postgraduate Center for Psychotherapy 218 E. 70th St., New York	S	SCI	LC, Lec	15½	10/ 3/56	1/23/57	I; 15 sessions 1½ hr. weekly, Wednesdays	40
717 Clinical Conferences	Postgraduate Center for Psychotherapy 218 E. 70th St., New York	S	SCI	LC, Sem	15	10/ 3/56	12/ 5/56	I; 10 sessions 1½ hr. weekly, Wednesdays	30
706 Techniques of Dream Interpretation	Postgraduate Center for Psychotherapy 218 E. 70th St., New York	S	SCI	LC, Lec	15	10/ 4/56	1/24/57	I; 10 sessions 1½ hr. weekly, Thursdays	35
716 Basic Psychiatry and Neurology	Postgraduate Center for Psychotherapy 218 E. 70th St., New York	S	SCI	LC, Lec	15½	10/ 4/56 2/ 7/57	1/24/57	I; 15 sessions 1½ hr. weekly, Thursdays	40

818 Clinical Conferences on Treatment Planning	Postgraduate Center for Psychotherapy 218 E. 70th St., New York	S	SCI	LC, Sem	22½	2/12/57	5/28/57	I; 15 sessions 1½ hr. weekly, Tuesdays	40
804 Continuous Case Seminar	Postgraduate Center for Psychotherapy 218 E. 70th St., New York	S	SCI	LC, Sem	22½	2/14/57	5/28/57	I; 15/sessions 1½ hr. weekly, Tuesdays	40
803 Continuous Case Seminar	Postgraduate Center for Psychotherapy 218 E. 70th St., New York	S	SCI	LC, Sem	15	2/14/57	4/24/57	I; 10 sessions 1½ hr. weekly, Thursdays	35
817 Clinical Conferences: Character Disorders	Postgraduate Center for Psychotherapy 218 E. 70th St., New York	S	SCI	LC, Sem	15	2/14/57	4/24/57	I; 10 sessions 1½ hr. weekly, Thursdays	30
Basic Psychoanalytic Principles A-1	The William Alanson White Institute of Psychiatry, Psychoanalysis and Psychology 12 E. 86th St., New York 28	G	SCI	Sem, Lec, O	16½	10/ 1/56	12/10/56	I; 11 sessions 1½ hr. weekly, Mondays	35
Evolution of Psychoanalytic Concepts AS-3	The William Alanson White Institute of Psychiatry, Psychoanalysis and Psychology 12 E. 86th St., New York 28	S	SCI	Sem, Lec, O	22	10/ 3/56	12/12/56	I; 11 sessions 2 hr. weekly, Wednesdays	45
Seminar on Child Therapy CS-15	The William Alanson White Institute of Psychiatry, Psychoanalysis and Psychology 12 E. 86th St., New York 28	S	SCI	Sem, Lec, O	20	10/ 3/56	12/ 5/56	I; 10 sessions 2 hr. weekly, Wednesdays	40
Modern Conceptions of Psychoanalysis B-1	The William Alanson White Institute of Psychiatry, Psychoanalysis and Psychology 12 E. 86th St., New York 28	B	SCI	Lec, O	9	10/ 4/56	12/13/56	I; 6 sessions 1½ hr. weekly, Thursdays	20
Relationship of Neurophysiology and Psychiatry C-5	The William Alanson White Institute of Psychiatry, Psychoanalysis and Psychology 12 E. 86th St., New York 28	S	BC	Sem, Lec, O	12	11/ 3/56	11/18/56	C; 4 days	25
Clinical Conceptions of Mental Disorders BS-15	The William Alanson White Institute of Psychiatry, Psychoanalysis and Psychology 12 E. 86th St., New York 28	S	SCI	Sem, Lec, O	20	1/10/57	5/16/57	I; 10 sessions 2 hr. weekly, Thursdays	40
Literature of Psychoanalysis, Part II A-10	The William Alanson White Institute of Psychiatry, Psychoanalysis and Psychology 12 E. 86th St., New York 28	G	SCI	Lec, O	16½	1/17/57	6/ 6/57	I; 11 sessions 1½ hr. weekly, Thursdays	35
Case Seminar on Clinic Treatment of Adolescents CS-10	The William Alanson White Institute of Psychiatry, Psychoanalysis and Psychology 12 E. 86th St., New York 28	S	SCI	Sem, Lec, O	16	1/28/57	5/ 6/57	I; 8 sessions 2 hr. weekly, Mondays	35
Symbolic Organization A-15	The William Alanson White Institute of Psychiatry, Psychoanalysis and Psychology 12 E. 86th St., New York 28	B	SCI	Sem, Lec, O	10	2/ 6/57	4/ 3/57	I; 5 sessions 2 hr. weekly, Wednesdays	25
Seminar on Current Issues in Psychoanalysis CS-14	The William Alanson White Institute of Psychiatry, Psychoanalysis and Psychology 12 E. 86th St., New York 28	S	SCI	Sem, Lec, O	12	2/ 7/57	5/16/57	I; 8 sessions 1½ hr. weekly, Thursdays	25
Practical Psychiatry	University of Washington School of Medicine Seattle 5	G	SC	Pt. Dem, LC, WR, Sem, Lec, O	35	7/22/57	7/27/57	C; 5 days	50
PSYCHOSOMATIC MEDICINE									
Mental Problems of Long Term Illness	City of Hope Medical Center 1500 E. Duarte Rd., Duarte, Calif.	G	BC	Pt. Dem, Lec, Pan, O	14	10/ 8/56	10/ 9/56	C; 2 days	25
710 Seminar on Psychosomatic Medicine	Postgraduate Center for Psychotherapy 218 E. 70th St., New York	S	SCI	LC, Sem, Lec	22½	10/ 4/56	1/24/57	I; 15 sessions 1½ hr. weekly, Thursdays	30
The Significance of Physical Symptoms in Personality Disorders	The William Alanson White Institute of Psychiatry, Psychoanalysis and Psychology 12 E. 86th St., New York 28	G	SCI	Sem, Lec, O	12	10/ 4/56	11/29/56	I; 8 sessions 1½ hr. weekly, Thursdays	25
Psychosomatic Aspects of Obstetrics and Gynecology	Frank E. Bunts Educational Institute 2020 E. 93rd St., Cleveland 6	G	BC	Sem, Lec, Pan, O, AV	10	3/20/57	3/21/57	C; 2 days	15
PUBLIC HEALTH (See also Occupational Medicine)									
Preventive Medical Aspects of City-County and School Health Units	University of Nebraska College of Medicine 42nd and Dewey, Omaha	G	BC	Lec, O, AV	6	9/ 6/56	9/ 6/56	C; 1 day	10
Extension Course in Public Health	New York State Department of Health State Office Building Albany, N. Y.; course at Rochester, Syracuse, Buffalo, Albany, Poughkeepsie	G	CC	Sem, Lec	30	Anytime	1 yr. from beginning	Write for details	25

Key will be found on page 1278.

PULMONARY DISEASE
(See also Radiology)

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Recent Advances in the Diagnosis and Management of Tuberculosis	City of Hope Medical Center 1500 E. Duarte Rd., Duarte, Calif.	G	BC	Pt. Dem, Lec, Pan, O	21	4/22/57	4/24/57	C; 3 days	25
A Symposium on Pulmonary Emphysema	Highland Alameda County Hospital 2701-14th Ave., Oakland 6, Calif.	B	BC	Lab, Sur, Sem, Lec, Pan, O, AV	11	3/15/57	3/16/57	C; 1½ days	40
Ninth Annual Symposium on Pulmonary Diseases	University of Colorado School of Medicine Office of Postgraduate Medical Education 4200 E. 9th Ave., Denver 20	B	SC	Pt. Dem, Sem, Lec, Pan	40	9/10/56	9/14/56	C; 5 day	Unknown
11th Annual Postgraduate Course on Diseases of the Chest	American College of Chest Physicians 112 E. Chestnut St., Chicago 11; course at Hotel Knickerbocker, Chicago	G	SC	Lec, Pan, O, AV	40	10/15/56	10/22/56	C; 5 days	75
9th Annual Postgraduate Course on Diseases of the Chest	American College of Chest Physicians 112 E. Chestnut St., Chicago 11; course at Park-Sheraton Hotel, New York	G	SC	Lec, Pan, O, AV	40	11/12/56	11/16/56	C; 5 days	75
2nd. Postgraduate Course on Diseases of the Chest	American College of Chest Physicians 112 E. Chestnut St., Chicago 11; course at San Francisco	G	SC	Lec, Pan, O, AV	40	12/56	12/56	C; 5 days	75
10th Annual Postgraduate Course on Diseases of the Chest	American College of Chest Physicians 112 E. Chestnut St., Chicago 11; course at Bellevue-Stratford Hotel, Philadelphia	G	SC	Lec, Pan, O, AV	40	3/57	3/57	C; 5 days	75
Postgraduate Course in Pulmonary Function	Indiana University School of Medicine 1100 W. Michigan St., Indianapolis	G	BC	Lec, Pan, AV	16	1/21/57	1/22/57	C; 2 days	25
In-Residence Training in Pulmonary Disease	University of Kansas Medical Center 39th & Rainbow Blvd., Kansas City, Ks.	G	MT	Lab, Pt. Dem, LC, WR, Sem, Lec, Pan, O, AV	Unknown	1/ 2/57 4/ 1/57 5/ 1/57	11/30/56	1 mo.	Unknown
Pulmonary Disease	University of Kansas Medical Center 39th and Rainbow Blvd., Kansas City, Ks.	B	BC	Pt. Dem, LC, Lec, Pan, O, AV	14	1/14/57	1/15/57	C; 2 days	30
The Measurement of Pulmonary Function in Health and Disease	Massachusetts TB & Health League 1101 Beacon St., Brookline, Mass.; course at Boston City Hospital	S	SC	Lab, Pt. Dem, LC, Sem, Lec, Pan, O, AV	35	3/25/57	3/29/57	C; 5 days	75
Pulmonary Diseases	University of Michigan Medical School Dept of Postgraduate Medicine University Hospital, Ann Arbor, Mich.	G	BC	Pt. Dem, Lec, Pan, O, AV	15	4/25/57	4/27/57	C; 3 days	30
Pulmonary Diseases	University of Nebraska College of Medicine 42nd and Dewey, Omaha	G	BC	Lec, Pan, O, AV	15	12/13/56	12/15/56	C; 2½ days	25
Recent Advances in Chest Disease	University of Buffalo School of Medicine 3425 Main St., Buffalo, N. Y.	G	BC	Pt. Dem, LC, WR, Sem, Lec, Pan, O, AV	14	9/19/56	9/20/56	C; 2 days	30
Diseases of the Chest (PM 80)	Columbia University 630 W. 168th St., New York; course at Bellevue Hospital, New York	G	SC	LC, WR, Lec	140	10/ 1/56 2/ 1/57	10/31/56	C; 20 days	125 first month, 75 each additional month
Diseases of the Chest (PM 71)	Montefiore Hospital 210th St. & Bainbridge Ave., New York 67	G	SCI	WR, Sem, Lec	52½	1/ 8/57	5/28/57	I; 21 sessions 2½ hr. weekly, Tuesdays	100
5422-A Acute and Chronic Diseases of the Chest	New York University Post-Graduate Medical School 550 First Ave., New York	G	SCI	Pt. Dem, Lec	16	4/ 8/57	5/27/57	I; 8 sessions 2 hr. weekly, Mondays	40
Symposium for General Practitioners on Tuberculosis and Other Pulmonary Diseases	Saranac Lake Medical Society P. O. Box 202, Saranac Lake, N. Y.	G	SC	Lab, Pt. Dem, LC, WR, Lec, Pan, O, AV	26	7/ 8/57	7/12/57	C; 5 days	40

RADIOLOGY
(See also Cardiovascular Disease, Forensic Medicine, Internal Medicine, and Occupational Medicine)

Roentgen Diagnosis and Therapy	College of Medical Evangelists 1720 Brooklyn Ave., Los Angeles 33	G	SCI	Pt. Dem, Lec, Pan, Sem	33	10/ 3/56	6/ 5/57	I; 33 sessions 1 hr. weekly, Wednesdays	100
Radiology Physics and Medical Use of Isotopes	University of Colorado School of Medicine 4200 E. 9th Ave., Denver 20	B	SCI	Sem	Unknown	10/56	6/57	I; once weekly for 9 mos., Tuesdays	10
Radiology 302, Introduction to X-rays and Radioisotopes	Yale University School of Medicine 333 Cedar St., New Haven, Conn.	S	SCI	Lec	11	9/27/56	12/13/56	I; 11 sessions 1 hr. weekly, Thursdays	25
Radiology 303, X-ray Physics	Yale University School of Medicine 333 Cedar St., New Haven, Conn.	S	SCI	Lab, Lec	20	1/10/57	3/14/57	I; 10 sessions 2 hr. weekly, Thursdays	40

Radiology 304, Radioactivity	Yale University School of Medicine 333 Cedar St., New Haven, Conn.	S	SCI	Lab, Lec	30	3/21/57	5/23/57	I; 10 sessions 3 hr. weekly, Thursdays	150
Principles of Medical Operation in Nuclear Warfare	Department of the Army, Office of the Surgeon General, Education and Training Division Washington 25, D. C.; course at Walter Reed Army Medical Center Washington 12, D. C.	G	SC	LC, Lec, O	216	10/ 8/56	11/17/56	C; 36 days	Nil
Medico Military Application Course for Radiological Defense Officer	Department of the Army, Office of the Surgeon General, Education and Training Division Washington 25, D. C.; course at Walter Reed Army Medical Center Washington 12, D. C.	G	SC	LC, Lec	320	4/ 8/57	5/31/57	C; 40 days	Nil
Course I Diagnostic Radiology	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SC	Lab, Pt. Dem, Sem, Lec, O, EPP	68	9/17/56 11/26/56 2/ 4/57 4/29/57	9/29/56	C; 12 days	125
Clinical Uses of Radioisotopes	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SCI	Lab, Pt. Dem, LC, WR, Lec, O, EPP	60	9/19/56 3/20/57	11/21/56	I; 10 sessions 6 hr. weekly, Wednesdays	200
Diagnostic Roentgenology	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SCI	Lab, Pt. Dem, LC, Lec, O	40	9/19/56 3/20/57	11/21/56	I; 10 sessions 4 hr. weekly, Wednesdays	100
The Clinical Uses of Radioisotopes	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SC	Lab, Pt. Dem, LC, Sem, Lec, O, AV, EPP	60	10/ 8/56	10/20/56	C; 10 days	200
The Clinical Use of Radioactive Iodine-I	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SC	Lab, Pt. Dem, LC, Sem, Lec, O, AV, EPP	30	4/ 1/57	4/ 5/57	C; 5 days	100
Course II Clinical Radiology	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SC	Lab, Pt. Dem, Sem, Lec, O, EPP	100	Arranged		C; 24 days	125
Course II Clinical Radiology	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SC	Lab, Pt. Dem, Sem, Lec, O, EPP	50	Arranged		C; 12 days	70
Course III X-ray Therapy	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SC	Lab, Pt. Dem, LC, WR, Sem, Lec, O, EPP	240	Arranged		C; 48 days	300
Course III X-ray Therapy	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SC	Lab, Pt. Dem, LC, WR, Sem, Lec, O, EPP	120	Arranged		C; 24 days	200
Course III X-ray Therapy	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SC	Lab, Pt. Dem, LC, WR, Sem, Lec, O, EPP	60	Arranged		C; 10 days	110
Course III X-ray Therapy	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SC	Lab, Pt. Dem, LC, WR, Sem, Lec, O, EPP	30	Arranged		C; 5 days	60
Radiology Conference	State University of Iowa Medical School Iowa City	B	BC	Pt. Dem, Lec, Pan, O, AV	6	10/56		C; 1 day	10
Radiological Physics	University of Kansas Medical Center 39th and Rainbow Blvd., Kansas City, Ks.	S	SCI	Lec, O	20	2/10/57	4/14/57	I; 10 sessions 2 hr. weekly, Sundays	30
Radiology and Radioactive Isotopes	University of Kansas Medical Center 39th and Rainbow Blvd., Kansas City, Ks.	B	BC	Lec, Pan, O, AV	28	2/11/57	2/14/57	C; 4 days	45
Radiology	Tulane University School of Medicine 1430 Tulane Ave., New Orleans	G	BC	Pt. Dem, WR, Sem, Lec	16	11/ 8/56	11/ 9/56	C; 2 days	25
Pediatric Radiology	Harvard Medical School, Courses for Graduates 25 Shattuck St., Boston; course at Children's Hospital, Boston	G	SC	Lab, Pt. Dem, LC, Lec, O	120	Arranged	Arranged	C; 26 days a mo.	150
General Radiology 1, 2, and 3	Harvard Medical School, Courses for Graduates 25 Shattuck St., Boston; course at Peter Bent Brigham Hospital, Boston	S	SC	Lab, Pt. Dem, LC, Sem, Lec, O	120	Arranged	Arranged	C; 26 days a mo.	150
Selected Chest Radiology	Tufts University School of Medicine Post-Graduate Division 171 Harrison Ave., Boston	G	BC	Pt. Dem, Lec, Pan, AV	10	5/17/57	5/18/57	C; 2 days	15
Diagnostic Radiology	University of Michigan Medical School Dept. of Postgraduate Medicine University Hospital, Ann Arbor, Mich.	G	SC	Lec, O, AV	20	4/ 8/57	4/12/57	C; 5 days	50
Radiation Therapy for Radiologists	Continuation Medical Education 1342 Mayo Memorial University of Minnesota, Minneapolis 14	S	SC	Sem, Lec, Pan, O	33	11/ 5/56	11/10/56	C; 6 days	75
Radiology for General Physicians	Continuation Medical Education 1342 Mayo Memorial University of Minnesota, Minneapolis 14	G	BC	Lec, O	15	4/ 8/57	4/10/57	C; 3 days	30
American Roentgen Ray Society—Instructional Course	Director of Instructional Courses Mayo Clinic, Rochester, Minn.; course at Statler Hotel, Los Angeles	S	BC	Lec, O, AV	6	9/25/56	9/28/56	C; 4 days	2 for each course 7 for four courses

Key will be found on page 1276.

RADIOLOGY—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Roentgen Diagnosis in Gastroenterology	Joint Committee on Post-Graduate Education 1313 Bedford Ave., Brooklyn 16, N. Y.; course at Beth-El Hospital, Brooklyn, N.Y.	G	SCI	Lec	8	10/56	12/56	I; 8 sessions 1 hr. weekly, Tuesdays	20
X-Ray Diagnosis	Joint Committee on Post-Graduate Education 1313 Bedford Ave., Brooklyn 16, N. Y.; course at Jewish Hospital, Brooklyn, N.Y.	G	SCI	Lec, AV	22	10/56 4/57	12/56	I; 11 sessions 2 hr. weekly, Tuesdays	30
X-Ray Diagnosis in Chest Diseases	Joint Committee on Post-Graduate Education 1313 Bedford Ave., Brooklyn 16, N. Y.; course at Beth-El Hospital, Brooklyn, N.Y.	G	SCI	Lec	8	10/56 4/57	12/56	I; 8 sessions 1 hr. weekly, Thursdays	20
Radiological Physics (PM 1)	Columbia-Presbyterian Medical Center 630 W. 168th St., New York 32	S	SCI	Lec	32	1/ 8/57	4/26/57	I; 32 sessions 1 hr. twice weekly, Tuesdays, Fridays	50
Roentgenographic Interpretation of the Diseases of Bones and Joints (PM30)	Hospital for Joint Diseases 1919 Madison Ave., New York 35	G	SCI	Lec, AV	24	10/ 3/56 3/ 6/57	12/19/56	I; 12 sessions 2 hr. weekly, Wednesdays	150
Radiology (PM35)	Mount Sinai Hospital Fifth Ave. and 100th St., New York 29	S	SCI	Lab, Pt. Dem, LC, Sem	144	9/56 12/56 3/57	11/56	I; 48 sessions 3 hr. 4 times weekly, Mondays, Tuesdays, Thursdays, Fridays	Unknown
Radiology of the Chest (PM31)	Mount Sinai Hospital Fifth Ave. and 100th St., New York 29	G	SC	Lec	10½	10/ 1/56 3/18/57	10/ 9/56	C; 7 days	50
Clinical Use of Radioactive Isotopes (PM 41)	Mount Sinai Hospital Fifth Ave. and 100th St., New York 29	S	SCI	Lab, Lec	102	10/ 8/56	5/27/57	I; 34 sessions 3 hr. weekly, Mondays	250
Differential Diagnosis in Radiology of the Chest (PM 34)	Mount Sinai Hospital Fifth Ave. and 100th St., New York 29	G	SCI	Pt. Dem, LC	15	10/15/56 4/ 1/57	12/17/56	I; 10 sessions 1½ hr. weekly, Mondays	50
Roentgen Diagnosis of Lesions of the Gastrointestinal tract (PM 32)	Mount Sinai Hospital Fifth Ave. and 100th St., New York 29	G	SC	Lec	10	3/ 4/57	3/15/57	C; 10 days	50
Radium Therapy (PM 33)	Mount Sinai Hospital Fifth Ave. and 100th St., New York 29	S	SCI	Lec	14	4/30/57	6/11/57	I; 7 sessions 2 hr. weekly, Tuesdays	50
Clinical use of Radioactive Isotopes (PM 40)	Mount Sinai Hospital Fifth Ave. and 100th St., New York 29	S	SC	Lab, Lec	140	6/ 3/57	6/28/57	C; 20 days	250
Radiology (PM 51)	Mount Sinai Hospital Fifth Ave. and 100th St., New York 29	S	MT	Lab, LC, Lec, EPP	Unknown			Specially arranged 6 or 12 mo.	300 for 6 mo. 600 for 12 mo.
Advanced Diagnostic Roentgenology and Radiotheraphy	New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York	G	SC	Pt. Dem, Lec, AV	480	10/ 1/56 4/ 1/57	Unknown	C; 72 days	300
Diagnostic Roentgenology and Radiation Therapy	New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York	G	SC	Pt. Dem, LC, Lec, AV	1920	10/ 1/56 4/ 1/57	9/30/57	C; 288 days	1000
Roentgen Interpretation	New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York	G	SC	Lec	480	10/ 1/56 4/ 1/57	12/31/56	C; 72 days	300
Advanced Course in Radiotherapy	New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York	G	SC	Pt. Dem, Lec	40	Arranged		C; 24 days	100
Practical Course in Superficial and Deep X-Ray Therapy	New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York	G	SC	Pt. Dem, LC, WR, Lec, AV	40	Arranged		C; 24 days	100
651-A Diagnostic Radiology for General Practitioners	New York University Post-Graduate Medical School, 550 First Ave., New York	G	SCI	Lec	64	9/26/56	5/ 1/57	I; 32 sessions 2 hr. weekly, Wednesdays	125
655-A Clinical Radiation Therapy	New York University Post-Graduate Medical School, 550 First Ave., New York	S	SCI	Sem, Lec	36	10/ 3/56	1/30/57	I; 18 sessions 2 hr. weekly, Wednesdays	Unknown
654-A Radiobiology	New York University Post-Graduate Medical School, 550 First Ave., New York	S	SCI	Sem, Lec	30	2/ 4/57	5/27/57	I; 20 sessions 1½ hr. weekly, Mondays	75
Instructional Courses	The Radiological Society of North American Inc. 713 E. Genesee St., Syracuse, N. Y.; course at Palmer House, Chicago	S	SC	Lab, Lec, Pan, AV	68	12/ 2/56	12/ 7/56	C; 5 days	15
Radiological Health—Basic Course	Robert A. Taft Sanitary Engineering Center 4676 Columbia Parkway, Cincinnati 26	G	SC	Lab, Lec, AV	60	10/15/56	10/26/56	C; 10 days	Nil
Physics of Radiology	Frank E. Bunts Educational Institute 2020 E. 93rd St., Cleveland 6	S	SCI	Sem, Lec, O, AV	25	1/ 3/57	4/25/57	I; 17 sessions 1½ hr. weekly, Thursdays	25

Radiological Physics	Western Reserve University School of Medicine 2109 Adelbert Road, Cleveland 6	S	MT	Lec, O, AV	24	2/ 1/57	5/30/57	4 mo.	25
Basic Course in Techniques of Using Radioisotopes	Oak Ridge Institute of Nuclear Studies Box 117, Oak Ridge, Tenn.	S	SC	Lab, Sem, Lec	95	9/ 3/56 10/22/56 1/ 7/57 2/ 4/57	9/28/56	C; 4 weeks	25
Radiological Physics	The University of Texas Postgraduate School of Medicine Texas Medical Center, Houston, Texas	G	SCI	Lec	24	10/56	4/57	I; 24 sessions 1 hr. weekly, Thursdays	10
Radiotherapy	The University of Texas Postgraduate School of Medicine Texas Medical Center, Houston 25, Texas	G	SCI	Lec	13	2/57	5/57	I; 13 sessions 1 hr. weekly, Mondays	25
Radiology	The University of Texas Postgraduate School of Medicine Texas Medical Center, Houston 25, Texas	G	BC	Lec	14	4/57	4/57	C; 2 days	20
Interpretation of X-ray Films	University of Texas Postgraduate School of Medicine, San Antonio, Tex.; course at Robert B. Green Memorial Hospital, San Antonio, Tex.	G	SCI	Pt. Dem, Lec, O	42	9/12/56	7/ 1/57	I; 42 sessions 1 hr. weekly, Wednesdays	1/hr.

SURGERY
(See also Malignant Disease and Anatomy)

Recent Advances in Surgery of the Lungs and Heart	City of Hope Medical Center 1500 E. Duarte Rd., Duarte, Calif.	G	BC	Pt. Dem, Lec, Pan, O	21	3/25/57	3/27/57	C; 3 days	25
Traumatic and Minor Orthopedic Surgery	College of Medical Evangelists 1720 Brooklyn Ave., Los Angeles 33	G	SCI	Lec, Pan	37½	10/ 2/56	1/10/57	I; 25 sessions 1½ hr. twice weekly, Tuesdays, Thursdays	75
Surgical Physiology	College of Medical Evangelists 1720 Brooklyn Ave., Los Angeles 33	G	SCI	Lec, Pan	64	10/ 4/56	6/ 6/57	I; 32 sessions 2 hr. weekly, Thursdays	75
Operative Surgery	College of Medical Evangelists 1720 Brooklyn Ave., Los Angeles 33	G	SCI	Cad, Sur	30	3/20/57	6/ 5/57	I; 12 sessions 2½ hr. weekly, Wednesdays	200
Thoracic Surgery	College of Medical Evangelists 1720 Brooklyn Ave., Los Angeles 33	G	BCI	Lec, Pan	8	4/24/57	5/15/57	I; 4 sessions 2 hr. weekly, Wednesdays	30
873—Cardiac Resuscitation	University of Southern California School of Medicine Postgraduate Division, Medical Research Bldg. 2025 Zonal Ave., Los Angeles 33	B	BC	LC, Lec, EPP	2	Continuous		C; 1 day weekly, Wednesdays	30
A Series of Post Graduate Surgical Programs	U. S. Veterans Administration Hospital (Fort Miley) 42nd Ave. and Clement St., San Francisco	G	SCI	Lab, Pt. Dem, LC, Sem, Lec, Pan	12	9/56		I; 6 sessions 2 hr. weekly, Tuesdays	Unknown
Symposium on Trauma	University of California Medical Center Second and Parnassus Aves., San Francisco	G	BC	Pan	14	9/29/56	9/30/56	C; 2 days	40
Surgery in Acute Trauma	Department of the Army, Office of the Surgeon General, Education and Training Division Washington 25, D. C.; course at Walter Reed Army Medical Center, Washington 12, D. C.	B	BC	Sem, Lec, Pan, O	24	4/ 1/57	4/ 3/57	C; 3 days	Nil
Surgery in Acute Trauma	Department of the Army, Office of the Surgeon General, Education and Training Division Washington 25, D. C.; course at William Beaumont Army Hospital, Ft. Bliss, Tex.	B	BC	Sem, Lec, Pan, O	24	4/ 1/57	4/ 3/57	C; 3 days	Nil
Surgery in Acute Trauma	Department of the Army, Office of the Surgeon General, Education and Training Division Washington 25, D. C.; course at Madigan Army Hospital, Tacoma, Wash.	B	BC	Sem, Lec, Pan, O	24	4/ 1/57	4/ 3/57	C; 3 days	Nil
Surgery in Acute Trauma	Department of the Army, Office of the Surgeon General, Education and Training Divison Washington 25, D. C.; course at Valley Forge Army Hospital, Phoenixville, Pa.	B	BC	Sem, Lec, Pan, O	24	4/ 1/57	4/ 3/57	C; 3 days	Nil
Surgery in Acute Trauma	Department of the Army, Office of the Surgeon General, Education and Training Division Washington 25, D. C.; course at Tripler Army Hospital, Honolulu, T. H.	B	BC	Sem, Lec, Pan, O	24	4/ 1/57	4/ 3/57	C; 3 days	Nil

Key will be found on page 1278.

SURGERY—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Surgery in Acute Trauma	Department of the Army, Office of the Surgeon General, Education and Training Division Washington 25, D. C.; course at Fitzsimons Army Hospital, Denver	B	BC	Sem, Lec, Pan, O	24	4/ 1/57	4/ 3/57	C; 3 days	Nil
Surgery in Acute Trauma	Department of the Army, Office of the Surgeon General, Education and Training Division Washington 25, D. C.; course at Letterman Army Hospital, San Francisco	B	BC	Sem, Lec, Pan, O	24	4/ 1/57	4/ 3/57	C; 3 days	Nil
Professor Pro Tempore Surgery	Mt. Sinai Hospital of Greater Miami 4300 Alton Rd., Miami Beach, Fla.	S	SC	Lab, Pt. Dem, LC, WR, Sur, Sem, Lec, Pan, O, AV	44	3/57	3/57	C; 6 days	Nil
Pre and Postoperative Care	American College of Surgeons 40 E. Erie St., Chicago Clinical Congress at San Francisco	S	BC	Sem, Lec, Pan, O, AV	12	10/ 8/56	10/11/56	C; 4 days	5
Gastrointestinal Tract									
Diseases of the Liver, Biliary Tract and Pancreas									
Cardiovascular Surgery									
Thoracic Surgery									
James B. Herrick Memorial Lecture	Chicago Heart Association 69 W. Washington St., Chicago; course at Palmer House, Chicago	G	BC	Lec, O, AV	2	2/12/57	2/12/57	C; 1 day	Nil
General Surgery	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SC	Pt. Dem, LC, WR, Sur, Lec, O	70	9/10/56 11/ 5/56 5/ 6/57	9/22/56	C; 12 days	250
Surgery of the Colon and Rectum	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SC	Lab, Pt. Dem, LC, Sur, Lec, O	35	9/17/56 10/15/56 11/26/56 3/ 4/57 4/ 1/57 5/ 6/57 6/10/57	9/21/56	C; 5 days	125
Course 1 Surgical Technic	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SC	Lab, LC, Sur, Lec, O, AV	90	9/17/56 10/29/56 11/26/56 12/10/56 1/28/57 2/11/57 2/25/57 3/25/57 4/ 8/57 4/29/57 5/13/57 6/ 3/57 7/15/57 8/19/57	9/29/56	C; 12 days	250
Surgical Technic with Practice	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SCI	Lab, Sur, Lec, O	50	9/19/56 2/ 6/57	11/21/56	I; 10 sessions, 5 hr. weekly, Wednesdays	250
Diseases of the Breast	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SCI	Lab, Pt. Dem, LC, WR, Sur, Lec, O	30	9/19/56 3/20/57	11/21/56	I; 10 sessions, 3 hr. weekly Wednesdays	150
Clinical Surgery	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SCI	Pt. Dem, Sur, Lec, O, AV	30	9/19/56 3/20/57	11/21/56	I; 10 sessions 3 hr. weekly, Wednesdays	150
Esophageal Surgery	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SC	Lab, LC, Sur, Lec, O, AV	25	9/24/56 6/17/57	9/28/56	C; 5 days	150
Thoracic Surgery	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SC	Lab, Pt. Dem, LC, Sur, Lec, O	30	10/ 1/56 6/10/57	10/ 6/56	C; 6 days	125
Surgical Anatomy on the Cadaver and Clinical Surgery	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SC	Lab, Pt. Dem, LC, WR, Sur, Lec, O, AV	100	10/ 1/56 3/11/56 6/17/57	10/13/56	C; 12 days	150
Surgical Pathology	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SC	Lab, Sem, Lec, O, AV, EPP	96	10/10/56 In 1957 by appointment	11/ 7/56	C; 24 days	250
Annual Postgraduate Course of the International College of Surgeons	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SC	Lab, Pt. Dem, LC, WR, Sur, Lec, O, AV	90	10/15/56	10/27/56	C; 12 days	150
Breast and Thyroid Surgery	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SC	Lab, Pt. Dem, LC, WR, Sur, Lec, O	34	10/22/56 6/17/57	10/27/56	C; 6 days	150
General Surgery	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SC	Pt. Dem, Sur, Lec, O, AV	25	10/22/56 2/11/57 5/18/57	10/26/56	C; 5 days	150

Gallbladder Surgery	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	BC	Pt. Dem, LC, Sur, Lec, O, AV	10	10/29/56	10/31/56	C; 3 days	100
Intensive Review Course Considering Basic Principles in General Surgery	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SC	Lab, Sem, Lec, O	85	11/ 5/56 4/ 8/57	11/17/56	C; 12 days	200
Surgical Technic with Practice	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SCI	Lab, Sur, Lec, O	25	11/28/56 4/17/57	12/26/56	I; 5 sessions 5 hr. weekly, Wednesdays	125
Surgical Pathology	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SC	Lab, Sem, Lec, O, AV, EPP	48	Arranged		C; 12 days	150
Surgery—Operative Clinics	University of Kansas Medical Center 39th and Rainbow Blvd., Kansas City, Kans.	B	BCI	Pt. Dem, Sur, Sem, O, AV	28	11/15/56	3/21/57	I; 4 sessions 7 hr. monthly except January, Thursdays	50
Surgery	University of Kansas Medical Center 39th and Rainbow Blvd., Kansas City, Kans.	B	BC	Pt. Dem, LC, WR, Sur, Lec, Pan, O, AV	28	1/21/57	1/24/57	C; 4 days	60
General Surgery 1	Harvard Medical School, Courses for Graduates 25 Shattuck St., Boston; course at Massachusetts General Hospital Boston	G	SC	Pt. Dem, LC, WR, Lec, O	150	10/15/56 5/20/57	11/ 9/56	C; 23 days	250
General Surgery 2	Harvard Medical School, Courses for Graduates 25 Shattuck St., Boston; course at Massachusetts General Hospital Boston	S	SC	Pt. Dem, LC, WR, Sem, Lec	Variable	Arranged	Arranged	C; by arrangement	200
Clinical Exercises for Practitioners	University of Michigan Medical School Dept. of Postgraduate Medicine University Hospital, Ann Arbor, Michigan	G	SCI	LC, WR, Lec, O	50	10/10/56	12/11/56	I; 10 sessions 5 hr. weekly, Wednesdays	25
Emergency Surgery for General Physicians	Continuation Medical Education 1342 Mayo Memorial, University of Minnesota, Minneapolis 14	G	BC	Lec, O	15	1/31/57	2/ 2/57	C; 3 days	30
Surgery	Continuation Medical Education 1342 Mayo Memorial, University of Minnesota, Minneapolis 14	S	BC	Lec, O	15	5/23/57	5/25/57	C; 3 days	30
Cardiac Resuscitation	St. Michael's Hospital 306 High St., Newark, N. J.	S	SCI	Lab, Sur, Lec, O, AV, EPP	72	10/20/56	6/ 8/57	I; 9 sessions 8 hr. once monthly Saturdays	25
Recent Advances in Surgery including Surgical Specialties	Albany Medical College 47 New Scotland Ave., Albany, N. Y.	G	BC	WR, Sem, Lec, Pan	15	11/15/56	11/17/56	C; 2½ days	25
Surgical Clinical Seminar	Albany Medical College 47 New Scotland Ave., Albany, N. Y.	G	BC	Sem, Lec, Pan	6	11/15/56	11/15/56	C; 1 day	10
Office Surgery	Joint Committee on Post-Graduate Education 1313 Bedford Ave., Brooklyn 16, N. Y.; course at St. John's Episcopal Hospital, Brooklyn, N.Y.	G	SCI	LC, Lec, AV	12	10/56	11/15	I; 8 sessions 1½ hr. weekly, Tuesdays	20
Peripheral Vascular Surgery (PM 65A)	Montefiore Hospital 210th St. & Bainbridge Ave., New York	G	SCI	Lec, AV	57	11/14/56	3/20/57	I; 19 sessions 3 hr. weekly, Wednesdays	150
Minor Surgery (PM 31)	Mount Sinai Hospital Fifth Ave. and 100th St., New York 29	G	BC	Pt. Dem, Pan, O	19½	10/29/56 1/ 7/57	10/31/56	C; 3 days	75
Clinical and Operative (Cadaver) Surgery	New York Polyclinic Medical School and Hospital 345 W. 50th St., New York	G	SC	Lab, Pt. Dem, LC, WR, Sur, Sem, Lec, Cad, O, EPP	164	10/ 1/56 4/ 1/57	10/31/56	C; 24 days	200
Combined Surgical Course including Cadaver Surgery & Gynecology	New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York	G	SC	Lab, Pt. Dem, LC, WR, Sur, Sem, Lec, O, AV, Cad, EPP	420	10/ 1/56 4/ 1/57	11/30/56	C; 48 days	350
Clinical Surgery	New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York	G	SC	Lab, Pt. Dem, LC, WR, Sur, Sem, Lec, O, AV	144	10/ 1/56 4/ 1/57	10/31/56	C; 24 days	100
Vascular Surgery	New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York	G	SCI	Lab, Pt. Dem, LC, WR, Sur, Sem, Lec, O, AV	16	Arranged		I; 8 sessions 2 hr. weekly, Thursdays	
Thoracic Surgery	New York Polyclinic School and Hospital 345 W. 50th St., New York	G	SCI	Lab, Pt. Dem, LC, WR, Sur, Sem, Lec, O, AV, Cad	12	Arranged		I; 6 sessions 2 hr. 3 times wk., Mondays, Wednesdays, Fridays	200
Surgical Anatomy	New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York	G	SCI	Lab, Sur, Sem, Lec, O, AV, EPP	12	Arranged October and April of each year		I; 6 sessions 2 hr. 3 times wk., Mondays, Wednesdays, Fridays	200
663-A Recent Advances in Surgery	New York University Post-Graduate Medical School, 550 First Ave., New York	S	SC	Pt. Dem, LC, Sem, Lec, Pan, O, AV	88	9/10/56	9/22/56	C; 12 days	200
551-A The Intervertebral Disc	New York University Post-Graduate Medical School, 550 First Ave., New York	S	SC	Pt. Dem, Lec	35	10/ 1/56	10/ 5/56	C; 5 days	90
553 A Acute and Neurological Problems in General Practice	New York University Post-Graduate Medical School, 550 First Ave., New York	G	SC	Pt. Dem, LC, Lec	39	10/15/56 4/29/57	10/20/56	C; 5½ days	125

Key will be found on page 1278.

SURGERY—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
661-A Review of General Surgery (For Specialists)	New York University Post-Graduate Medical School, 550 First Ave., New York	S	SC	Lab, Pt. Dem, Sem, Lec, Pan, O, AV	176	10/15/56	11/10/56	C; 24 days	300
6612-A Cardiac Arrest and Resuscitation	New York University Post-Graduate Medical School, 550 First Ave., New York	S	BC	Lab, Sur, Sem, Lec, Pan, O, AV	8½	11/12/56	11/12/56	C; 1 day	50
664-A Trauma (Excluding Fractures)	New York University Post-Graduate Medical School, 550 First Ave., New York	S	SC	Lab, Lec, O	39	11/26/56	12/ 1/56	C; 5½ days	125
666-A Diagnosis and Treatment of Trauma	New York University Post-Graduate Medical School, 550 First Ave., New York	G	SC	Pt. Dem, Lec	42	12/ 3/56	12/ 8/56	C; 6 days	100
552-A Diagnosis and Treatment of Peripheral Nerve Injuries	New York University Post-Graduate Medical School, 550 First Ave., New York	G	SC	Pt. Dem, LC, Lec	35	1/14/57	1/18/57	C; 5 days	90
650-A Physiological and Pharmacological Principles Underlying the Surgical Management of Diseases of and Pertaining to the Para-Sympathetic and Sympathetic Nervous System	New York University Post-Graduate Medical School, 550 First Ave., New York	S	SC	Lab, Pt. Dem, LC, Sem, Lec, Pan, O, AV	44	1/14/57	1/19/57	C; 5½ days	150
667-A Surgery of the Hand	New York University Post-Graduate Medical School, 550 First Ave., New York	G	SC	Pt. Dem, Cad, Lec	42	3/18/57	3/23/57	C; 6 days	100
Regional Anatomy & Cadaver Surgery in the Field of Otolaryngology	University of Cincinnati College of Medicine Eden and Bethesda Aves., Cincinnati 19	S	SC	Lab, Pt. Dem, Sur, Sem, Lec, O, AV, EPP	45	4/15/57	4/20/57	C; 5½ days	150
General Surgery	University of Oregon Medical School 3181 S. W. Sam Jackson Rd., Portland	G	SC	Pt. Dem, LC, WR, Sur, Lec, O, Pan	35	10/22/56	10/26/56	C; 5 days	50
Bronchology, Esophagology, and Laryngeal Surgery	Graduate School of Medicine University of Pennsylvania, Philadelphia	S	SC	Sur, Lec, Pan, AV	60	6/ 6/57	6/17/57	C; 10 days	250
Surgical Pathology and Pathologic Anatomy	The University of Texas Postgraduate School of Medicine Texas Medical Center, Houston, Tex.; course at Scott and White Clinic-Hospitals, Temple, Tex.	G	MT	Lab, EPP	Unknown	Scheduled on request		12 days	25

UROLOGY

General Urology	College of Medical Evangelists 1720 Brooklyn Ave., Los Angeles 33	G	SCI	Lec, Pan	24	10/ 1/56	12/17/56	I; 12 sessions, 2 hr. weekly, Mondays	50
Los Angeles Urologic Research Convention	Director, Los Angeles Urologic Research Convention 6253 Hollywood Blvd., Los Angeles; course at Ambassador Hotel, Los Angeles	S	SC	Pt. Dem, LC, Sem, Lec, Pan, O, AV	40	11/12/56	11/16/56	C; days	65
Sterility	University of California School of Medicine Los Angeles 24	G	SCI	Lec, Pan, AV	15	2/21/57	3/21/57	I; 5 sessions, 3 hr. weekly, Thursdays	40
James C. Kimbrough Urological Seminar	Department of the Army, Office of the Surgeon General, Education and Training Division Washington 25, D. C.; course at Walter Reed Army Medical Center Washington 12, D. C.	B	BC	LC, Lec	24	9/19/56	9/21/56	C; 3 days	Nil
Urology Postgraduate Course	State University of Iowa Medical School Iowa City	B	BC	Pt. Dem, Lec, Pan, O, AV	6	9/12/56	9/12/56	C; 1 day	15
Urology	Cook County Graduate School of Medicine 707 S. Wood St., Chicago 12	G	SC	Lab, Pt. Dem, LC, WR, Sur, Lec, O, AV	80	10/ 8/56	10/20/56	C; 12 days	225
Urology for General Physicians	Continuation Medical Education 1342 Mayo Memorial, University of Minnesota Minneapolis 14	G	BC	Lec, O	15	1/ 3/57	1/ 5/57	C; 3 days	30
Instrumental Urology	New York Polyclinic Medical School and Hospital 345 W. 50th St., New York	G	SCI	Lab, Pt. Dem, LC, WR, Lec, AV	24	Arranged		I; 12 sessions, 3 hr. 3 times a wk. Tuesdays, Wednesdays, Saturdays	100
Urological Surgery	New York Polyclinic Medical School and Hospital 345 W. 50th St., New York	G	SCI	Pt. Dem, LC, WR, Sur, Lec, O, AV	80	Arranged		I; 48 sessions, 2 hr. 3 times a wk. Mondays, Wednesdays, Fridays	150
674-A Refresher Course in Basic Urology	New York University, Post-Graduate School of Medicine, 550 First Ave., New York	G	SC	Lab, Pt. Dem, Cad, Lec	35	1/14/57	1/18/57	C; 5 days	75
671-A Advanced Course in Urology	New York University, Post-Graduate School of Medicine, 550 First Ave., New York	S	SC	Lab, Pt. Dem, LC, AV	70	5/13/57	5/24/57	C; 10 days	175
Diagnosis and Treatment of Common Urological Disorders	University of Texas Postgraduate School of Medicine San Antonio Tex.; course at Robert B. Green Memorial Hospital, San Antonio, Tex.	G	SCI	Pt. Dem, Lec, O	8	11/ 7/56	11/28/56	I; 4 sessions 2 hr. weekly, Wednesdays	10

Key will be found on page 1278.

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Functional Evaluation of Mitral Valvulotomy: Superiority of the Treadmill Exercise Tolerance Test to Clinical and Resting Hemodynamic Evaluations in Selecting Patients. R. A. Bruce, K. A. Merendino, J. J. Pampush and others. Am. J. Med. 20:745-755 (May) 1956 [New York].

Clinical and laboratory examinations were made before and after mitral valvulotomy in 52 patients between the ages of 19 and 65 years, 49 of whom had been operated on for relief of disabling mitral stenosis. The patients were followed up postoperatively for 1 to 36 months. The functional capacity of each patient was evaluated according to the criteria of the New York Heart Association. Each patient was subjected to fluoroscopy with careful recording of the enlargement of the heart chambers, pulmonary engorgement, and mitral valve calcification. Laboratory tests included electrocardiography, phonocardiography, determinations of vital capacity, circulation time, venous pressure, and arterial oxygen saturation while patients were breathing both air and oxygen. Cardiac catheterization was performed in the usual manner. Quantitative exercise-tolerance tests were done on a treadmill ergometer operated at 1.7 mph on a 10% grade for 10 minutes. Exercise tolerance was expressed objectively in terms of the physical fitness index representing the ratio of efficiency of oxygen utilization during effort to rapidity of circulatory recovery, with normal values ranging from 13 to 26.

Of the 52 patients, 29 were improved postoperatively, 15 were unchanged, 3 were worse, and 5 died. Analysis of the salient factors that may affect prognosis of valvulotomy revealed that the standard exercise tolerance test affords more assistance than the usual clinical or hemodynamic criteria based on examinations at rest of patients with mitral stenosis. Patients with predominant mitral stenosis are more likely to benefit from mitral valvulotomy if, despite intensive and prolonged medical treatment, they exhibit dyspnea, fatigue on exertion, and disability due to pulmonary vascular engorgement and objectively show impaired endurance, fall in systolic pressure, and only a slight reduction in respiratory efficiency during effort. If the physical fitness index is between 3 and 6, the need for surgery is definite, the risk of operative mortality due to inadequate cardiac reserve is minimal, and the chances of benefit are maximal. Further observations will be required to determine whether or not the slight decline in physical fitness index observed in patients followed up for three years represents evidence of recurrent stenosis of the mitral valve.

Chronic Progressive (Cavitary) Histoplasmosis as a Problem in Tuberculosis Sanatoriums. M. L. Furcolow and C. A. Brasher. Am. Rev. Tuberc. 73:609-619 (May) 1956 [New York].

Chronic progressive histoplasmosis, in contrast to the acute progressive or disseminated form, occurs primarily among older persons and is localized to the lungs except in the terminal stages. Both forms of the disease are eventually fatal. The early stage of the chronic form is characterized by apical or subapical pneumonic infiltrations that progress to multiple thick-walled, usually bilateral cavities. The progressive nature of the disease has been proved. The descriptive term, chronic progressive (cavitary) histoplasmosis, is proposed to designate this type of disease. The symptoms of this form of histoplasmosis are cough, moderate weight loss, usually a slight elevation of the sedimentation rate, occasional elevation of temperature, profuse sputum, and sometimes hemoptysis. The disease is characterized by exacerbations. The patient usually seeks medical help after an acute bout of what is called "influenza," at which time pneumonic or cavitary disease is found. This bout may subside and the patient not be seen again until several years later, at which time he has a similar episode and further extension is discovered. The disease usually progresses to fatal termination, and just before this occurs there is dissemination of the fungus throughout the body, with enlargement of the liver and spleen. Frequently at autopsy Histoplasma capsulatum may be cultured from all organs of the body. In this type of disease the sputum is usually loaded with H. capsulatum, and positive cultures are readily obtained. Serologic tests are usually positive and serve as a good screening tool. Tubercle bacilli are occasionally found, but most of the cases are not complicated by tuberculosis.

Whereas only 16 cases of chronic progressive cavitary histoplasmosis have been reported previously, on the basis of studies the authors carried out at the Missouri State Sanatorium at Mount Vernon, Mo., it can be concluded that this type of disease occurs frequently among patients in a tuberculosis sanatorium. The frequency of "mycologically proved" cavitary cases was 2.4% among the 600 patients in the tuberculosis sanatorium, and the frequency of the "serologically proved" cavitary cases was 4.8%. The implications of these findings may be seen by applying them to the 16,500 tuberculosis beds in the area of high histoplasmin sensitivity. If similar findings prevailed in the other sanatoriums, 1,200 cases of chronic progressive cavitary histoplasmosis might be expected to be found in these sanatoriums. That these estimates are fairly correct has been confirmed by Sutliff and Campbell, who obtained positive serologic tests for histoplasmosis in 7.3% of 150 tuberculous patients in Memphis, Tenn. Patients with chronic progressive histoplasmosis not only occupy beds intended for tuberculous patients but they derive no benefit from antituberculosis therapy and, indeed, may contract tuberculosis. Furthermore, the demonstration of more cases of histoplasmosis should furnish an adequate pool of cases for trials of therapeutic agents so urgently needed in this fungal infection.

Nonspecific Mesenteric Adenitis. M. J. T. FitzGerald. Irish J. M. Sc. 6:205-228 (May) 1956 [Dublin, Ireland].

Nonspecific mesenteric adenitis occurred in 109 (0.87%) of 9,495 patients admitted to hospital for observation. Ninety-nine of the 109 patients were between the ages of 5 and 20 years. Sixty (55%) were male and 49 (45%) were female. There was a typical history of abdominal colic of varying severity referred to the umbilical region or right lower abdominal quadrant. The temperature was raised in 54 patients; the face showed a malar flush, with or without circumoral pallor, in 43; the tongue was coated in 76; tenderness was present in 90; shifting tenderness (Klein's sign) was observed in 12; lymph nodes were palpated through the abdominal wall in 35; and 61 (56%) gave a history of upper respiratory infection within one month of the present illness, as compared with 25% of 100 control patients who had illnesses that had no relationship to upper respiratory infection. Appendectomies were performed in 70 patients, and in more than one-third of these the removed appendix showed evidence of active inflammation. Throat swabs from 50 patients incubated on blood agar revealed only the normal flora. Nonspecific mesenteric adenitis occurs with much greater frequency than is generally realized. It is the commonest cause of recurrent abdominal pains in childhood and adolescence. It is a clinical entity and can be diagnosed with confidence in most cases. Emphasis is to be placed on the typical history, the appearance of the face and general condition of the patient, migration of pain and tenderness, and the palpation of enlarged lymph nodes

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The place of publication of the periodicals appears in brackets preceding each abstract.

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through the abdominal wall. There is no laboratory aid to diagnosis. When delay is not justified in a patient suspected to have acute appendicitis, operation is indicated. The complaint is self-limiting, and the value of conservative as opposed to radical treatment is difficult to assess. Upper respiratory tract infection is a significant predisposing factor. Infection with streptococcus hemolyticus is of no importance in the causation of the disease. Circumstantial evidence points to a virus as a possible causative agent.

Further Observations on the Treatment of Leptospirosis. R. L. Doherty. Australasian Ann. Med. **5**:23-31 (Feb.) 1956 [Sydney, Australia].

In 1955 it had been pointed out by the author that the clinical findings in 115 patients with leptospirosis observed in North Queensland were mild in comparison with those of previous Australian series. The contrast in mortality, in the number of patients jaundiced, and in the duration of fever was so striking that it seemed probable that the antibiotics given to most patients had modified the course of their disease. The author has since studied a further series of 158 patients with leptospirosis, giving him a total group of 273 patients. The list of the serotypes represented shows that the australis A and the australis B types were most frequent, being present in 88 and 69 patients respectively. The clinical course was uncomplicated in 266 of the patients, two became uremic, and one of these also became grossly jaundiced; in this patient and four others, iritis, cyclitis, or iridocyclitis developed in convalescence; one patient had leptospiral meningitis. The two patients who became uremic received no antibiotic during the initial febrile period of their illness. Analysis of 85 patients with australis A or the closely related "Esposito" infection and of 68 with australis B infection showed that, for each serotype, the total duration of fever and the duration of fever after treatment were less in patients given intermediate or large doses of penicillin than in those given small doses. Twenty-six patients received one of the broad-spectrum antibiotics; analysis suggested that the response was inferior to that from large doses of penicillin. There was no evidence that increasing the dose of penicillin above 2,400,000 units per day improves the results in australis A infections. This may be suggested as a suitable dose for future treatment. It remains to be seen whether dosage of this magnitude will lower the mortality in series from areas where the leptospiroses are less common than in North Queensland and are therefore diagnosed at a later stage of illness.

Fever of Unknown Origin: II. A Discussion Around Four Typical Cases. L. E. Böttiger. Acta med. scandinav. **154**:215-223 (No. 3) 1956 (In English) [Stockholm, Sweden].

Four typical cases of fever of unknown origin are described. The first patient, a 77-year-old man with a relatively recent history of pleurisy of unknown cause, was admitted to the hospital because of fever and pain in his hip. Active pulmonary lesions were not observed, and tubercle bacilli were not found in his gastric contents. He did not respond to a short trial with antituberculous drugs. Accordingly, he was not believed to have tuberculous arthritis and was treated with large doses of antibiotics and later with cortisone. He died after four months in the hospital, and autopsy showed tuberculous arthritis of the hip and a recent miliary tuberculosis. Roentgenograms of the hip were normal up to five months after the onset of the symptoms. The second patient, a 16-year-old boy who had bouts of spiking fever, arthralgia, and skin rash recurring several times within 18 months, was considered to have systemic lupus erythematosus. He finally was treated with erythromycin, and because he made a striking response a diagnosis of micrococcic (staphylococcic) septicemia, supported by the finding of a sparse growth of Micrococcus pyogenes var. albus on one blood culture and a rising antistaphylolysin titer, was made. No focus, however, could be found, and the possibility remained that the bacteria might have entered through a seemingly simple throat infection. The third patient, a 77-year-old man, had peaks of intermittent fever of unknown origin that for several months were accompanied by swelling around the eyes. Painful, red, swollen areas gradually developed over several peripheral muscles. A diagnosis of dermatomyositis was made and confirmed by biopsy. Cortisone treatment gave an excellent result. The fourth patient, a 34-year-old woman, was admitted to the hospital because of fever of a septic type associated with a slightly enlarged liver and a leukocytosis of 35,000 as the only positive findings. A septic infection was suspected, and she was treated accordingly, but she did not respond to any treatment. A tentative diagnosis of Hodgkin's disease was finally made, which could be confirmed only at autopsy.

Tuberculosis, malignant tumors, nonspecific infections, and collagen diseases are among the diseases most commonly diagnosed as fever of unknown origin. A complete x-ray examination of the internal organs, a sternal marrow examination, and, if feasible, a lymph node biopsy are essential in all cases of long-standing unexplained fever. Tuberculosis should not be considered as a disease of the past, but should be considered in any patient with fever of unknown origin, especially in a middle-aged patient with long-standing fever. In cases of obscure fever every effort should be made to establish a diagnosis before the indiscriminate use of antibiotics, which is responsible for the fact that fever, a physiological state, has regained the status of a disease entity. It is wise always to suspect collagen disease as the cause of an unexplained fever, especially in young adults when the fever is intermittent and accompanied by musculoskeletal and cutaneous symptoms. The abdominal variety of Hodgkin's disease should be remembered when all other examinations are negative.

Contribution to Problem of Renal Diabetes. H. Steigerwald and F. Görlitz. Medizinische No. 16, pp. 609-614 (April 21) 1956 (In German) [Stuttgart, Germany].

The maximal glucose reabsorption capacity of the tubules and the "kidney threshold" were determined with the aid of Smith's glucose saturation method in two men, aged 24 and 20 years, with renal glycosuria. The maximal glucose reabsorption capacity of the tubules was reduced in both patients; values of 230 mg. and 252 mg. per minute were determined as compared to normal values of 375 mg. per minute. The kidney threshold of 88 mg. per 100 ml. in one patient was much lower than in normal persons, and that of 167 mg. per 100 ml. in the other patient was only slightly lower than in normal persons. These deviations from the norm are expressions of changes in the "glomerular activity" of the nephrons, i.e., of the ratio of glomerular glucose filtration to tubular glucose reabsorption in one nephron. Two varieties of glomerular activity of the nephrons were observed among the authors' patients. One group of patients showed reduced glomerular activity, and the other group showed increased activity. Increased activity may be considered as the cause of renal glycosuria in patients with normal blood sugar level. The changes in glomerular activity depend on the anatomic changes of the proximal segments of the tubules, which have been described by Monasterio. Enzymatic hypofunction in the tubules may play an additional part. This was suggested by the increase in the kidney threshold from 88 to 166 mg. per 100 ml. and in the maximal glucose reabsorption capacity of the tubules from 252 to 326 mg. per minute that occurred in the authors' patients after the administration of riboflavin.

Preliminary Experiences with Peroral Treatment of Diabetes Mellitus with the Sulfonamide Compound "Nadisan." M. Broglie, G. Voss, E.-G. Berg and O. Rühling. Medizinische, No. 17, pp. 656-659 (April 28) 1956 (In German) [Stuttgart, Germany].

Of 50 patients with diabetes mellitus to whom carbutamide (BZ-55) was given, 35 were followed up for a time sufficiently long to evaluate the results. Twenty-two showed a good response to the drug, a success ratio of 60%. This ratio is somewhat smaller than that reported by other workers, but may be explained by the fact that infants with diabetes were among the authors' patients. Until results on a larger scale become available, the following recommendations seem to be justified. 1. Stabilization of the diabetes with carbutamide; change of treatment from that with insulin to that with carbutamide should be carried out only by physicians with experience in the treatment of diabetes. Both stabilization and change of

treatment should be carried out in the hospital only. A preliminary period of observation before the institution of carbutamide therapy is desirable, and an attempt should be made to discontinue the administration of the drug temporarily, since results obtained showed that some of the patients with good response to carbutamide were able to maintain for many weeks without further administration of tablets the effect obtained from an 8-to-10-day course. 2. Ambulatory treatment with carbutamide may be justified only in exceptional cases, i.e., in intelligent patients of adipose-sthenic type, with good discipline, aged over 55 years, with mild or moderate diabetes for which they are to be treated for the first time. Control examinations for which suitable laboratory facilities are available and which in the beginning should be carried out daily are indispensable. 3. Ambulatory treatment is strictly contraindicated in children, adolescents, and other labile patients with a tendency to acidosis. 4. All patients with diabetes whose conditions have been stabilized with carbutamide should be cautioned that febrile infections and other stresses are associated with great risk. In such cases the patient must immediately place himself under supervision by a specialist, preferably in a hospital, since additional treatment with insulin may become necessary. 5. Usual dietary measures remain indispensable with carbutamide therapy. When these recommendations are carefully observed, the new method may bring about great improvement in the therapy of diabetes, provided that late impairment can be definitely excluded. Late impairment should be watched for carefully.

Further Experiences with the Determination of Insulin in the Blood Serum with the Isolated Rat Diaphragm. A. F. Willebrands and J. Groen. Nederl. tijdschr. geneesk. **100**:817-823 (March 24) 1956 (In Dutch) [Haarlem, Netherlands].

The authors review the history of a method for in vitro assay of insulin in the blood serum. The method is based on Gemmill's observation in 1940 that when an isolated rat diaphragm is incubated with a buffered solution that contains glucose, the metabolism of the tissue is maintained, in that glucose disappears from the medium and glycogen is formed. Gemmill also found that the consumption of glucose is stimulated by the addition of insulin to the medium. On the basis of Gemmill's observations the present authors in collaboration with Kamminga and Blickman demonstrated in 1950 that insulin could be found in the blood serum with the aid of the isolated rat diaphragm. In this paper the authors report additional studies on this test method, describing the preparation of the rat diaphragms, and tests with the blood serum of healthy persons, of patients with diabetes mellitus, of patients with hyperinsulinism, and of patients with acromegaly. They concluded that the technique for the demonstration of insulin in vitro by its action on the glucose utilization of the isolated rat diaphragm can be used for a quantitative determination of the amount of insulin in blood serum. The process is laborious, and only a fairly rough estimate is possible. The figures given by different investigators for the normal insulin content of blood differ greatly. The method is not yet sensitive enough for the study of small variations in the secretion of insulin, but it has been found useful for the detection of very high or very low serum insulin concentrations in some pathological conditions.

Cardiospasm: Favorable Results with Anticholinergic Medication. M. J. Matzner and C. Windwer. Am. J. Gastroenterol. **25**: 454-462 (May) 1956 [New York].

Cardiospasm is generally regarded as a failure of the cardiac orifice to relax. It probably ranks next in frequency to carcinoma as a cause of esophageal obstruction. It may occur in childhood or old age but is most common in middle life. Patients with this condition frequently have a history of emotional upsets. The authors point out that the concept that cardiospasm is a local nervous disturbance of a cardia has been weakened. Studies have demonstrated a generalized disturbance of the entire esophagus characterized by an abnormal esophageal motility pattern and specific hypersensitive response to the parasympathomimetic drug, acetyl-beta-methylcholine chloride (Mecholyl), with resultant esophageal spasm. The earliest and most constant symptom is dysphagia. Pain is relatively infrequent. Roentgenological examination is the most important procedure in excluding the presence of some other obstructive process. The roentgen diagnosis rests on the demonstration of a smooth, tapering, centrically placed stenosis at or near the cardia with dilatation proximally. While esophagoscopy is of limited diagnostic value, some believe that it should be used to exclude carcinoma or peptic ulcer.

Treatment may be medical, mechanical, or surgical. The authors believed that medical measures deserved further investigation, particularly since the recently observed hypersensitivity to Mecholyl suggested the investigation of anticholinergic medication. They present observations on eight patients with cardiospasm who were treated medically with anticholinergics in the form of oxyphenonium bromide (Antrenyl) as an adjuvant measure. The patients were told to avoid emotional stress, hot and cold foods, and to adhere to a bland, soft diet. From 5 to 10 mg. of oxyphenonium bromide was given 30 minutes before meals. Marked subjective improvement occurred. No significant change in the diameter of the esophagus was noted. Although there was an observable delay of the barium meal at the cardioesophageal region during fluoroscopy, these patients stated that they were relieved of their previous dysphagia. The authors emphasize that anticholinergic medication should be used not as a sole but rather as an adjuvant measure in the medical management of cardiospasm.

Corrosive (Acid) Gastritis: Management of Early and Late Cases. F. Steigmann and R. A. Dolehide. New England J. Med. **254**:981-986 (May 24) 1956 [Boston].

Corrosive (acid) gastritis, with its sequela of pyloric stenosis, has received little attention in the American literature. Caustic alkalis cause liquefaction necrosis primarily in the oral and esophageal mucosa and have little if any effect, in most cases, on the gastric mucosa because of the neutralizing action of the stomach secretions. Acids, in contrast, are notorious for their coagulation necrosis of the gastric mucosa with acute and chronic sequelae. The acute symptoms may include hemorrhage, shock, and "perforation" with peritonitis. The late sequelae may be classified according to the amount of destruction and the resultant scar formation: pyloric stenosis, antral stenosis, hour-glass deformity, or, rarely, total gastric scarring resulting in a linitis plastica.

The four histories presented in this paper illustrate the adequate and inadequate management of corrosive gastritis. If the patient survives the first 24 hours, maceration and necrosis of the mucosa of the esophagus or stomach occur. This may result in severe mediastinitis after lye poisoning and in gastritis with upper abdominal peritonitis after acid poisoning. During this stage (a week or longer) the patient is still in danger. However, if the injury is not overwhelming, the patient usually responds to a supportive regimen of sedatives, antibiotics, blood transfusions, fluids (with attention to the electrolyte balance), antispasmodics, and various demulcents given by mouth. It is important not to use any large stomach tube for lavage when the patient is first seen after the ingestion of a corrosive agent, because such a tube may increase the damage to the gastric or esophageal wall. However, weak emetics may be used, or preferably only demulcents, such as egg white, milk, and olive oil. When the patient presents the symptoms of peritonitis, with a tender, rigid, painful abdomen, the impulse to perform an emergency laparotomy must be resisted. Occasionally, an erroneous diagnosis of peritonitis from a ruptured viscus is made because there is no history of intake of a corrosive substance. If the surgeon opens such an abdomen and finds a highly inflamed, almost gangrenous organ, he should perform only a jejunostomy and close the abdomen. If the damage is not too severe and the patient survives the first few days, nature as a rule will take care of the burned organ. The patient may thus remain asymptomatic for weeks or even months. Then, depending on the pathological changes that have occurred, he will present himself to the physician with one or more of the following symptoms: weight loss, anorexia, nausea, bloating, eructation, epigastric fulness, and vomiting. Whereas the treatment of the acute stage is supportive, i. e., medical, the treatment of the sequelae is surgical, i. e., pyloroplasty or gastroenterostomy, depending on the changes found at laparotomy. Subtotal gastric resection is rarely indicated.

Diagnosis of Islet-Cell Tumours of the Pancreas. J. D. C. Kelly. Lancet 1:668-670 (May 12) 1956 [London, England].

Until recently the diagnosis of islet-cell tumor depended on (1) a hypoglycemic attack resulting from fasting or exertion; (2) a blood sugar level below 50 mg. per 100 ml. during the attack; and (3) the prompt relief of an attack by glucose. Assay of serum for insulin content offers a possibility for diagnosis. Of the two main methods of plasma insulin assay the in vitro method, with the rat diaphragm, is considered easier and more satisfactory. Other investigators obtained with this method fasting plasma insulin levels of 31 to 82 micro-units per milliliter in healthy persons. With these figures indicating the range of normality, a diagnostic assay was made on the patient whose history is presented. A 33-year-old man was hospitalized in a semiconscious state. His wife stated that he was subject to fits, the last one having occurred four hours previously. Examination revealed typical signs of a hypoglycemia, and the patient responded to the intravenous administration of a 50% dextrose solution. He later stated that in the previous two years he had had intermittent blackouts, usually before the midday or the evening meal, and he related them to being tired or to going without food for some hours. The premonitory symptoms included hunger, dizziness, and diplopia. An attack could be averted by taking glucose tablets or food. An islet-cell tumor of the pancreas was tentatively diagnosed, and the patient was admitted for further investigations. A glucose-tolerance test suggested that glucose was rapidly removed from the circulation.

The patient was starved on two occasions to induce an attack and to make a plasma insulin assay. Typical hyperglycemia resulted that responded immediately to intravenous administration of dextrose. The blood sugar level was 53 mg. per 100 ml. during the attack. The plasma insulin assay showed that there were 300 micro-units per milliliter, compared with the normal value of 31 to 82 micro-units. This made the diagnosis of an islet tumor of the pancreas definite. The pancreas was explored, and a tumor was found and removed. After operation the starvation test and plasma insulin assay were repeated, but no symptoms or signs of hypoglycemia appeared. The blood sugar level remained more constant after removal of the tumor. The plasma insulin level at the end of 19 hours was 50 micro-units per milliliter. In the present case the blood sugar level during the attack of hypoglycemia did not fall below 50 mg. per 100 ml., and thus one of the three criteria of Whipple and Frantz was not fulfilled, although an islet tumor was present. Assay of the insulin content of the plasma confirmed the diagnosis.

Tubeless Gastric Analysis in the Study of Acid Secretion Following Gastric Irradiation for Peptic Ulcer. J. T. Galambos and J. B. Kirsner. Gastroenterology 30:398-601 (April) 1956 [Baltimore].

The value of tubeless gastric analysis as an index of the changes in gastric secretion during treatment was investigated in 33 patients with peptic ulcer (duodenal, 30; esophageal, one; gastric, one; and jejunal, one) who were receiving gastric irradiation as a therapeutic adjunct. The total amount of radiation was 1,600 r, administered in divided doses over a period of 10 days. Conventional and tubeless gastric analyses were performed before and after the conclusion of the irradiation. The patients were then kept under observation for periods ranging in length from one to eight months (13 patients, one to two months; 10, three to four months; and 10, five to eight months). Continuous excessive secretion of hydrochloric acid under basal conditions is one of the fundamental disturbances in duodenal ulcer; consequently, the unstimulated (basal) gastric secretion was used in making the measurements. The tubeless gastric analyses were performed as close to the one-hour basal gastric aspirations as possible; in several patients, however, the intervals between the two tests were prolonged. The correlation between basal gastric analysis and tubeless gastric analysis was considered positive (1) when, in the absence of hydrochloric acid, the reaction for quinine in the two-hour test urines was 0 (15m^{s}) and (2) when, with demonstrable hydrochloric acid in the basal secretion, the reaction for quinine in the test urine ranged between 1+ and 4+.

A direct correlation was found between the results of the one-hour basal secretion and the tubeless gastric analysis in 24 patients; in 18, the initial disappearance of hydrochloric acid after roentgen therapy and its continued absence or subsequent return during the period of observation were correctly indicated, and in 6 others the results accurately reflected the persistence of free acid in the basal secretion. A decrease in the tubeless gastric analysis reading to 0 was recorded in four patients, although the basal secretion, measured on a different day, showed small amounts of hydrochloric acid (15 to 35 mg.). The discrepancy in these cases may have been due to the day-to-day variation in basal gastric secretion. Lack of correlation between the two methods in another case was due only to the fact that the reading for the pretreatment tubeless gastric analysis, which could not be repeated, was 0, although hydrochloric acid was demonstrable in the gastric content. Correlation between the results of the two tests in this patient after roentgen therapy was satisfactory. Tests in the remaining four patients showed no correlation.

These results seem to show that (1) conventional gastric analysis can be postponed as long as the tubeless gastric analysis remains consistently negative and the patient is free from symptoms and (2) tubeless gastric analysis provides a simple and useful index of the presence or absence of hydrochloric acid in the gastric content of patients with peptic ulcer receiving gastric irradiation as a therapeutic adjunct.

Tubeless Estimation of Gastric Acidity. C. Bonessa and G. Mars. Minerva med. 47:728-732 (March 14) 1956 (In Italian) [Turin, Italy].

The authors estimated the gastric acidity by giving patients an ion-exchange resin bound to quinine. The quinine, in contact with the hydrochloric acid of the stomach, separates itself from the resin, joins the chloride ion, and forms quinine hydrochloride. This is absorbed, goes into the circulation, and is eliminated with the urine. When hydrochloric acid is not present in the stomach, the quinine and the resin remain unmodified and are excreted in the feces. The search for quinine in the urine is then negative. This test is given either on an empty stomach or after administration of caffeine or histamine parenterally. The test was given to 108 patients, 24 to 89 years old. The patients were divided into three groups: 23 were normal, 41 had gastric disease, and 44 had other types of disease. The gastric acidity had been previously measured by means of gastric intubation. Results were similar in both tests.

Protracted Jaundice. F. Steigmann, S. Canahuati and W. Dalessandro. Am. J. Gastroenterol. 25:441-453 (May) 1956 [New York].

In patients with protracted jaundice (lasting three months or longer) the diagnosis may prove difficult. In order to facilitate the diagnosis in such patients, the authors classified 100 patients with protracted jaundice into four symptomatic groups and then into surgical and medical subgroups. The diagnosis in these patients was confirmed by abdominal exploratory operation, punch biopsy of the liver, and autopsy. Some patients who later came to autopsy had had a laparotomy or liver biopsy previously. This series included 29 patients with malignant (complete) obstruction, 22 with benign (incomplete) obstruction, 23 with cirrhosis, and 26 with hepatitis. Of the 55 patients of group 1, who had prolonged jaundice only, 31 (group 1A) had more or less constant jaundice and 24 (group 1B) had intermittent jaundice. Of group 1A, 10 had medical and 21 had surgical cases; of group 1B, 16 had medical and 8 had surgical cases. The 23 patients of group 2 had prolonged jaundice plus fever; the 7 patients of group 2A, in whom the jaundice was constant, included 2 with medical and 5 with surgical cases; the 16 patients of group 2B, in whom the jaundice was intermittent, included 6 with medical and 10 with surgical cases. In the 18 patients of group 3, jaundice was complicated by ascites; the 9 of group 3A, in whom the jaundice was constant, included 3 with medical and 6 with surgical cases; the 9 of group 3B (remittent jaundice) included 8 with medical cases and one with a surgical case. The four patients of group 4 had prolonged jaundice, ascites, and fever; two patients of this group, one with malignant obstruction and one with hepatitis, had constant jaundice, while two with cirrhosis had remittent jaundice.

The data obtained indicate that in these patients, most of whom were observed in a charity hospital, there was an almost equal number with medical (hepatitis and cirrhosis) as surgical (malignant and benign obstructive) lesions and that these cases fall with almost equal frequency into each symptomatic group. The age group, the racial strain, and the history may be of some differential diagnostic value. The presence of abdominal masses or of a palpable gallbladder most often indicates a surgical condition; but a palpable spleen and ascites do not always point to a medical jaundice. The size of the liver or whether it is smooth or nodular is of little value in the diagnosis of protracted jaundice. A history of jaundice of one year or longer is most often obtained in medical cases. High levels of total cholesterol and alkaline phosphatase are usually indicative of a surgical condition, while medical jaundice is characterized by low albumin and high globulin levels and positive cephalin-flocculation and thymol-turbidity tests. Some of the findings such as nausea, fever, vomiting, anorexia, weakness, pruritus, jaundice, splenomegaly, ascites, and cholesterol ester percentage, which are of significance in patients with early jaundice, are of little or no value in the differentiation of medical from surgical cases of protracted jaundice.

Acute Barbiturate Poisoning—How Should It Be Treated. J. K. Wilson. J. Pediat. 48:693-697 (June) 1956 [St. Louis].

A 4-year-old boy who was in coma when admitted to the hospital had taken an unknown amount of probarbital sodium elixir. For the 36 hours preceding his admission he had received picrotoxin repeatedly, pentylenetetrazol on several occasions, and fluids intravenously, alternating 5% dextrose in water and 5% dextrose in isotonic sodium chloride solution. The intravenous fluids contained enough levarterenol bitartrate to maintain a fairly good blood pressure. The child did not show any signs of improvement. On admission a polyethylene tube was placed in an ankle vein and a tracheotomy was performed. Before the patient was placed in a respirator his breath sounds seemed normal and there was no evidence of pulmonary edema, atelectasis, or other abnormality. While in the respirator he was given 3 mg. of picrotoxin intramuscularly and his rectal temperature was found to be 92 F. Hot water bottles were applied for eight hours, and his temperature rose to 96 F rectally. Repeated injections of picrotoxin were given with no apparent effect. Administration of picrotoxin and of stimulants was discontinued, and for the next seven hours the patient was maintained on oxygen in the respirator and 100 cc. of low sodium human serum albumin was given intravenously. A second unit of low serum albumin was to have been started when death occurred 15 hours after admission. The author asks whether (1) analeptic drugs should be used in a child or adult with severe barbiturate poisoning, (2) large doses of human serum albumin should be used, (3) potassium chloride should be used routinely, (4) oxygen should be used in severely depressed patients, and (5) exchange transfusion should be used in the desperately ill, severely comatose patient with barbiturate poisoning.

Editorial Comment on the Treatment of Acute Barbiturate Poisoning. J. N. Etteldorf and R. A. Woodbury. J. Pediat. 48: 698-704 (June) 1956 [St. Louis].

The questions asked by Wilson (see preceding abstract) were answered by the authors in their editorial comment. The medical literature on the treatment of poisoning caused by barbituric acid derivatives is highly confusing. Wilson's case suggested that the child had suffered irreversible depression and damage to the central nervous system before treatment was instituted. Consequently, no therapeutic regimen would be expected to be very satisfactory. Pentylenetetrazol and picrotoxin are the preferred analeptics in the treatment of barbiturate intoxication because they increase the excitability of the brain stem. They may be lifesaving but must be given in sufficient amounts to increase the activity of the respiratory and vasomotor centers in the medulla, thereby reducing or preventing the deleterious effects of hypoxia. The initial dose of pentylenetetrazol ranges from 50 to 100 mg. for children and from 500 to 750 mg. for adults. Picrotoxin should be given in doses of 0.2 or 0.3 mg. per kilogram of body weight (15 to 25 mg. in divided doses at 15-minute intervals for an adult and proportionately less for a child, usually 3 to 6 mg.). Picrotoxin has a latent period of 10 to 15 minutes. Failure to recognize this may result in giving an overdose and the appearance of convulsions. Though it may be necessary to continue to give large doses of analeptics, they should never be pushed to the point of causing convulsions. Analeptics are not necessary for maintaining respiratory exchange when one of the mechanical means for artificial respiration is available.

A dose of 2 cc. of human serum albumin per kilogram of body weight, with a maximum of 60 to 80 cc., is recommended to reduce cerebral edema and to improve circulation. Potassium therapy is always indicated when there is a deficit of this ion. It is advisable to hydrate the patients with 30 cc. of one-half or one-third strength sodium chloride solution and 5% dextrose solution per kilogram of body weight before giving potassium. This ion should be given at a rate not to exceed 3.5 mEq. per kilogram of body weight per 24 hours. Oxygen should be given early and in high concentration to all patients with severe depression of the central nervous system. Its administration should be started before hypoxia becomes intense and before the depressed respiration becomes dependent on the impulses arising from the carotid body. Exchange transfusions may prove helpful, particularly in early cases when the procedure would be valuable in reducing the concentration of poison in the plasma and aid in its elimination. If there is a release of the poison from body depots such as fat in patients with barbiturate poisoning, the procedure may be repeated with benefit. It would be of no benefit in patients in whom irreversible damage of the central nervous system is likely.

Management of Neuroses by the Internist and General Practitioner. H. Berger. New York J. Med. 56:1783-1788 (June 1) 1956 [New York].

The neurotic person, with his innumerable symptoms, his inability to recover, his discouragement, and his effect on his environment, constitutes a difficult problem. When the practitioner recognizes that the problem is psychosomatic, these patients may be advised to "forget it" or to "keep a stiff upper lip." This is usually fruitless, because this type of person is incapable of resolving a frustration; if he were able to do this alone, seemingly organic symptoms would never have developed. To advise such a patient to "forget it" is about as useless as ordering a legless invalid to run a race. The author found it helpful to acquire psychiatric interview techniques and to learn to listen rather than to speak to these patients. They never wish to be told they are just nervous. They are certain that they are seriously ill, and they demand that the physician treat their disease. Placebos may do, but, since the patient believes he is suffering from an organic illness, it is frequently necessary to administer some form of therapy at the office. As the patients become more friendly, they may begin to unburden themselves about problems they dare not discuss with a stranger. Referral to a psychiatrist is rarely advisable. The patient is usually reluctant to admit that he is mentally sick, and he can continue to believe that he is organically ill as long as he visits the office of a nonpsychiatrist.

These patients require an explanation as to why a severe stomach ache or diarrhea is due to nervousness and not to ulcer or cancer. The author has found it helpful to point to an electric lamp and say to the patient, "Let's assume that that lamp were to go out this moment. What would you say caused the trouble? A faulty bulb? The wiring? A fuse? The generating plant itself? Note that the bulb is not the only possible cause. Then isn't it just as possible that a pain in your stomach might be due not only to a disease of your stomach but also due to disease in the nerves leading to your stomach or due to an illness or derangement in the brain?" The brain seems to function on two levels, one having to do with reason and the other with emotions. Insane people do not have functional complaints and, conversely, nervous people do not become lunatics. There is a large element of truth in these statements, and they are usually readily accepted by the patient. To cure nervous strain efforts should be made to (1) remove some of the causes of strain; (2) build up the nervous system so it can stand more strain; (3) remove the nervous tensions within the patient. New interests are helpful. The patient should also be shown

that his nervousness is really an asset, that is, pent up energy. All this misdirected energy can be directed into productive work. If the patient asks why he needs a doctor if he is not sick, he can be told that a person cannot read a card held against his nose, but if it is held a foot away he can read it easily. Similarly, the physician's impartial detachment from his problems makes it easier to see and recognize the difficulties.

Phenobarbital, reserpine, and chlorpromazine have proved helpful in the management of these neurotic patients. The Rauwolfia alkaloids in 1-mg. doses are very effective. In hysterical or highly agitated people, chlorpromazine in 50-to-100-mg. doses has been infused. In 94 severely incapacitated patients, intravenous mephenesin helped to establish sufficient rapport that cure or control of all presenting symptoms was obtained in 87. The seven patients in whom the treatment failed were all psychotic.

SURGERY

The Pattern of Metastasis of Carcinoma of the Thyroid. G. Crile Jr. Ann. Surg. **143**:580-587 (May) 1956 [Philadelphia].

In 33 of 69 patients with papillary carcinoma of the thyroid, the thyroid was not palpably enlarged, there was slight diffuse enlargement, or nodules with diameters of 1 cm. or less were palpable. In 29 of these 33 patients, the secondary cancer was the presenting sign of the disease and in 28, despite the small size of the primary tumor, 6 to 40 cervical lymph nodes were involved. In four of these, distant metastases were present before the primary tumor was recognized. Palpable nodules with diameters of 1 to 3 cm. were present in 29 patients and palpable nodules with diameters of 4 to 6 cm. in 7. These observations suggest that, if papillary carcinomas of the thyroid are capable of metastasizing, they usually do so before they form noticeable primary tumors. If papillary carcinomas of the thyroid are large enough to form noticeable primary tumors and still have not given rise to recognizable metastases, there is little chance that they will metastasize even if they are left untreated for long periods of time. When a primary papillary carcinoma of the thyroid has not given rise to recognizable metastases, there is no indication for prophylactic neck dissection. Delay in the treatment of frank papillary carcinoma of the thyroid does not seem to alter the good prognosis for the patients with this type of tumor. In more than half of the patients there were delays varying from 2 to 32 years, and yet in all these patients the local disease appeared to have been eradicated by surgical treatment. Undifferentiated carcinoma of the thyroid, however, is one of the most malignant of all cancers. It occurs almost exclusively in patients over 40 years of age and is a uniformly fatal disease that usually arises with no history of preexisting goiter and is rarely if ever controlled by operation regardless of how early or radically it is treated. There is a small group of angioinvasive carcinomas of intermediate malignancy whose clinical behavior and relationship to nodular goiter is so variable that it is impossible to determine whether or not their early removal would sometimes prevent distant metastasis. Clinical and laboratory evidence suggests that manipulation of angioinvasive carcinomas at the time of operation may force cancer cells into the bloodstream and give rise to metastases. The value of routine removal of all thyroid nodules in order to prevent death from cancer is questionable. The course of most cancers of the thyroid is determined by the biological characteristics of the tumor and the resistance of the host and bears little or no demonstrable relationship to moderate delay in treatment.

The Treatment of Tuberculous Lung Cavities by Continuous Intrapulmonary Drip: A Preliminary Report. D. J. M. Jenkin. Brit. J. Tuberc. **50**:181-186 (April) 1956 [London, England]

Eight patients with cavitary pulmonary tuberculosis were treated by insertion of a rubber catheter of suitable size into the cavity to be treated and by running antibiotics in solution into the cavity, combined with cavity drainage. The solution used consisted of 1.5 to 3 gm. of isoniazid in 60 or 120 cc., respectively, which was used to dissolve 5 gm. of streptomycin, 1,000,000 units of penicillin, and 1 gm. of oxytetracycline. The total instillation was so regulated as to require eight hours, including occasional periods when the drip was shut off to give the patient a rest. Depending on the condition of the patient and response to the drip, the procedure was repeated at weekly or biweekly intervals. Sputum output increased greatly. The patients became febrile, usually by the end of the first day. This was caused by liquefaction of material within the cavity and dissemination and absorption of toxic products. Adequate amounts of antibiotics were given parenterally or by mouth, the antibiotic of choice being selected by means of preliminary sensitivity tests on secondary invaders previously obtained from the cavity. One gram of streptomycin was given daily together with maximum doses of isoniazid in the earlier weeks of treatment by intrapulmonary drip, and between each treatment water-sealed drainage of the cavity was maintained. Complete cavity closure was obtained in three patients. The remaining five were still undergoing treatment, but in each of these successful results were anticipated because great reduction in cavity size and sputum output had already occurred. In every patient there remained a second or third cavity yet to be treated; therefore, at this stage sputum conversion had not occurred to enhance the results of treatment. Following this form of "medical curettage" of a tuberculous cavity, slight blood-staining of the sputum was to be expected and, apart from the necessity for reassuring the patient, was ignored.

Total Pancreatectomy. I. Honjo. J. Internat. Coll. Surgeons **25**:551-557 (May) 1956 [Chicago].

Experimental investigations in dogs and the clinical use of total pancreatoduodenectomy in eight patients, one of whom was leading a healthy life three years after the operation, have shown that this procedure might well be more widely applied to man. The author's studies were designed to throw light on the postoperative complications by which the patient's life may be endangered and the best methods of preventing them. These complications are fatty liver, insulin sensitivity, hypoglycemia, jejunal ulcer, ascending infection of the biliary ducts, and disturbances of metabolic function. Evaluation of the efficiency of the gastrointestinal tract after total pancreatoduodenectomy in three patients showed that the average absorption rates of protein and fat dropped 25% and 43%, respectively, while the carbohydrate rate remained almost normal. These figures show that the postoperative capacity for absorption is much better in man than it is in dogs.

Other workers have found that total pancreatectomy in dogs is sometimes followed by the development of a fatty liver and a reduction in the amount of esterified cholesterol in the serum, even to zero. Eventually, the dogs die as a result of severe hepatic dysfunction. These complications, if they occur in human beings, would necessarily lead to hesitation in the use of this procedure in clinical practice. The ester-cholesterol ratio was therefore studied in three patients at various periods after total pancreatoduodenectomy. The first patient was in satisfactory condition without any medicament except insulin three years after the operation, and since his serum cholesterol-ester ratio was within normal limits throughout the postoperative period, there seemed to be little likelihood that fatty liver would develop. Liver function in the second patient was seriously disturbed at the time he was admitted to the hospital. His serum cholesterol-ester ratio returned to normal after operation and maintained its level for about 30 weeks, gradually decreasing thereafter until his death from progressive disease one year after he was operated on. The third patient died of anorexia and emaciation five months after operation and was found at autopsy to have had generalized tuberculosis. The serum cholesterol-ester ratio in this patient began to decrease when his general condition deteriorated, and since it is known that a fatty liver is apt to develop in certain patients with tuberculosis, its occurrence in this case cannot be ascribed solely to removal of the pancreas. The development of fatty liver in man, therefore, seems to occur only in exceptional cases.

Studies relating to other postoperative complications in man show that (1) as long as an adequate food intake is maintained, the amount of insulin administered need not be reduced after total pancreatectomy in order to prevent hypoglycemia; (2) the endocrine activity of the pituitary

gland is lowered after total resection of the pancreas; (3) it may be possible to prevent the development of jejunal ulcer by keeping the blood sugar level relatively high above normal; (4) ascending infection of the biliary ducts can be prevented by removing the gallbladder concurrently with the pancreas; and (5) an adequate calcium intake should be provided when necessary to prevent disturbances of calcium metabolism.

Substitute for Stomach After Total Gastrectomy: Use of Right Half of Colon. K. C. Jonas. J. Internat. Coll. Surgeons **25**:558-561 (May) 1956 [Chicago].

The difficulty encountered by surgeons in finding a satisfactory replacement for the stomach has seriously retarded acceptance of total gastrectomy as the operation of choice for gastric cancer. Most investigators are agreed that the viscus used to replace the stomach should be interposed between the esophagus and the duodenum, first, because this position preserves the normal relations between the organs and permits free regurgitation of bile and pancreatic juice into the new stomach, which is a distinct aid to digestion; second, because the food is not swept out prematurely as a result of lying distal to the duodenum; and third, because the need for a side opening with the distressing reflux esophagitis that accompanies it is avoided. The new stomach should also have some intrinsic absorptive power, and it should approximate the normal stomach in capacity. The Hunnicutt operation, or transposition of the terminal portion of the ileum and the right half of the colon, which meets these requirements surprisingly well, was carried out in four patients without operative mortality. Anastomotic leakage from the terminal portion of the esophagus occurred in one patient. Attempts to close the leak were unsuccessful, but a "gastrostomy" into the cecum functioned well enough to enable the patient to be ambulatory for seven months before succumbing to extensive recurrence of malignant disease in the epigastrium. The substitute stomach in the other three patients, though not ideal, functioned much better than any esophagojejunostomy observed by the author. Food capacity was greater, the tendency to dumping, though present at first, did not persist, and postoperative loss of weight was not pronounced. One patient died 13 months after the operation of recurrent malignant disease producing obstructive jaundice, but for 12 of those months he was essentially free of digestive complaints. The third patient regained the weight he had lost in the hospital and was without evidence of digestive disturbance when he succumbed to extensive pulmonary metastases about a year later. The fourth patient was still living 18 months after the operation, and, although he was not able to digest fats well, his nitrogen balance was positive and he was essentially free from complaints. The primary healing and good immediate functioning of all the anastomoses in these patients was probably due in large part to the use of fine-gauge interrupted stainless steel sutures. None of the patients required intestinal intubation either before or after operation.

Effect of Venous-Shunt Surgery on Liver Function in Patients with Portal Hypertension: A Follow-Up Study of 125 Patients Operated on in the Last Ten Years. D. S. Ellis, R. R. Linton and C. M. Jones. New England J. Med. **254**:931-936 (May 17) 1956 [Boston].

The authors studied 125 patients who were subjected to 130 shunt operations to relieve portal hypertension. Eighty-eight of these patients were treated by splenectomy and a splenorenal anastomosis. There were 21 deaths in this group (24%). Thirty-seven patients underwent a direct portacaval anastomosis, with 15 deaths to date, or 40.5%. Death from hepatic failure occurred in 10 of the 88 patients (11%) undergoing splenorenal anastomosis, and in 10 of the 37 patients (27%) in whom a portacaval shunt was made. This difference in mortality, as well as the morbidity in the patients after portacaval shunts, induced the authors to do the splenorenal shunt when possible in spite of the fact that recurrent bleeding was slightly more frequent in the splenorenal shunt group. There were five so-called makeshift, or lesser, shunts. These shunts were anastomoses between lesser tributaries of the portal circulation and the inferior vena cava, the left adrenal vein, and the left ovarian vein. These were made in patients in whom it was found impossible to use the portal vein or in those who had had previous splenectomies. In general, these shunts had limited value, and none of them were as satisfactory as a splenorenal or direct portacaval shunt. Of 54 patients operated on, 27 were living five or more years later, and 102 of 125 or 81% lived for at least one year after operation. Comparison of this series of patients with other series treated without operation revealed that the occurrence of bleeding was greatly reduced and life was prolonged in the author's series. Of 76 patients reexamined by roentgenologic study, 80% were found to have reduction in the size of the esophageal varices. This is interpreted as evidence of reduced portal pressure. Examination of and laboratory tests on many of the 82 patients now surviving revealed clinical and laboratory evidence of improvement in liver function.

Factors Contributing to Ileostomy Dysfunction. W. F. Barker. West. J. Surg. **64**:235-239 (May) 1956 [Portland, Ore.].

Although rehabilitation of a patient with ulcerative colitis by ileostomy and colectomy is gratifying to the surgeon, it should be remembered that the operation is fraught with pitfalls. The author reviews observations on 43 patients who were subjected to ileostomy because of ulcerative colitis. Twenty of these patients complained of complications that followed their initial ileostomy, performed elsewhere. Twelve of the 23 patients in whom the author performed the first operation remained free from complications. Inasmuch as several patients had more than one complication, individual episodes are discussed. The author classifies the complications resulting in poor ileostomy function as intrinsic disease or direct surgical complications. The former group included primary ascending enteritis, intra-abdominal adhesions, and carcinoma in the retained colon. In the latter group were prolapse, stricture, fistula, and retraction of the ileostomy; excoriation of the skin and inability to keep an ileostomy bag in place; and intestinal obstruction due to improper placement of the ileal mesentery and, hence, development of a prestomal axial twist. Pulmonary embolus and peritonitis were the chief causes of the four postoperative deaths. Two other deaths due to ileac perforation occurred six to nine months after ileostomy. Although the number and variety of complications may appear startling, 33 of the 37 surviving patients gained weight, many between 50 and 80 lb., following ileostomy, and all but three of the survivors were better able to perform their normal activities than before operation. Even those who had the most untoward complications stated spontaneously their preference for ileostomy in comparison to their preileostomy status. The increasing popularity of the operation is allowing accumulation of technical information useful in preventing or treating these complications. The end-result of ileostomy for ulcerative colitis should be almost complete social and physical rehabilitation.

The Management of Cecal Cancer Discovered Unexpectedly at Operation for Acute Appendicitis. H. A. Patterson. Ann. Surg. **143**:670-681 (May) 1956 [Philadelphia].

Of 17 patients between the ages of 23 and 82 with cancer of the right half of the colon, the base of the appendix was blocked by cecal cancer with resulting appendicitis in 13. One of the tumors was a malignant carcinoid of the cecum, and the others were of the usual type. In 7 of the 13 patients a preoperative diagnosis of acute appendicitis was made and a correct diagnosis of cecal cancer was made promptly at the time of the first operation. Four of the patients died within 19 days to two years after the first operation, and only three were doing well, the longest current survival without evidence of disease being 21 months. These results are discouraging, but one must remember that, with cecal cancer, acute inflammatory manifestations usually mean advanced disease. It is felt that the first chance at these tumors is the best and that immediate resection should be done whenever feasible. In the remaining 6 of the 13 patients, the diagnosis of cecal cancer was delayed for from three months to seven and a half years, usually necessitating multiple operations. One patient did well for seven and

a half years because of the favorable nature of his tumor (cecal carcinoid carcinoma). In another of these patients, good palliation was obtained by two right ileocolectomies performed at an interval of three months. Only one of the six patients who underwent no less than three operations was apparently cured and seemed to be well more than 10 years later. Curative surgery may be attempted in advanced cases, even if it involves removing a large segment of the abdominal wall.

Four additional patients with cecal cancer are reported on whose cases were closely related to those in the 13 patients. In the first of these, the cecal cancer gave a typical picture of acute appendicitis, without causing it. The second patient was operated on for acute appendicitis associated with cecal distention, secondary to annular obstructing cancer of the colon, distal and remote from the right lower abdominal quadrant. The third patient had appendicitis caused by obstruction of the base of the appendix by a secondary tumor (primary in the rectum), probably a rare occurrence. In the last patient, there was perforation of a cecal cancer, and the changes in the appendix were due merely to involvement in the wall of the resulting abcess. This patient was the only one of the group in whom resection of the ascending colon was preceded by preliminary ileocolostomy. The four patients died within five to seven months after the operation.

A review of the literature confirmed the impression that earlier diagnosis and better results should follow greater awareness of the rather common association of appendicitis and cecal cancer. The acute appendicitis may even be considered a fortunate sequel of the location of the neoplasm, making a silent cecal cancer announce its presence. A plea is made for early and radical operations in these cases. Although preliminary drainage may be necessary with some of the foul abcesses that have been present for some days, in most patients with coexisting cecal cancer and acute appendicitis (even with perforation) the first chance at cure is likely to be the best chance.

Obstruction of the Alimentary Tract in the Neonatal Period. G. A. Hallenbeck. Minnesota Med. 39:265-270 and 275 (May) 1956 [St. Paul].

The types of obstruction of the alimentary canal likely to be encountered during the neonatal period include atresia of the esophagus, hypertrophic pyloric stenosis, malformations of the anus, incarcerated hernia (inguinal or diaphragmatic), atresia or stenosis of the intestine, incomplete rotation of the midgut, meconium ileus, duplications of the intestinal tract, obstruction associated with Meckel's diverticulum, annular pancreas, and aganglionic disease of the colon. The first four conditions listed permit accurate diagnosis, and the surgeon ordinarily knows the cause of obstruction before operation. The exact diagnosis in the remaining conditions may be suspected or even fairly certain but it is often impossible to make it preoperatively. The safety factors in the surgical treatment of such infants are less than they are in adults. Experienced anesthesiologists and an understanding of the management of fluid and electrolytic balance in infants are essential to success. Although disappointments are common and although multiple and sometimes hidden anomalies other than the one being treated can thwart success, good results often are achieved and are extremely gratifying.

Pancoast Tumor: Five-Year Survival Without Recurrence or Metastases Following Radical Resection and Postoperative Irradiation. W. M. Chardack and J. D. MacCallum. J. Thoracic Surg. 31:535-542 (May) 1956 [St. Louis].

Pain, paralysis, and atrophy within the lower brachial plexus territory, Horner's syndrome, and a density in the pulmonary apex with erosion of adjacent ribs are the salient features of the Pancoast syndrome. Pancoast's concept of a specific branchiogenic epithelioma was discarded as subsequent observations showed that a wide variety of malignant tumors may produce a Pancoast syndrome, either by direct extension into or by metastases located in the thoracic inlet. However, most such cases are due to a bronchogenic carcinoma arising in the extreme pulmonary apex. It is widely held that the lesion is incurable and that the presence of a Pancoast syndrome signifies inoperability and prohibits surgical exploration. A 54-year-old man was admitted to the Veterans Administration hospital in Buffalo on April 19, 1950, complaining of excruciating and intractable pain around the shoulder that radiated into the uhar territory. There were ptosis and myosis of the right eye, and a roentgenogram of the chest showed a small density in the right apex. The clinical diagnosis was apical bronchiogenic carcinoma with Pancoast syndrome, and an operation was performed on May 15. The postoperative course was uneventful. Neurological examination revealed the expected deficit due to removal of roots at the level of the seventh and eighth cervical vertebrae and the first thoracic vertebra, but the postoperative changes were hardly more extensive than the damage from tumor involvement observed preoperatively. In the expectation of delivering a cancerocidal dose to any potentially remaining microscopic foci of an undifferentiated tumor, radiation therapy was begun, and 6,528 r was delivered over 54 days to the general tumor area. The patient was seen at three-month intervals, and his status five years after the operation was excellent. There was no evidence of recurrence or metastasis and no increase in the extent of his paralysis. The prevailing concept that the Pancoast syndrome signifies inoperability and incurability should be reconsidered, and any unexplained persistent neuritic pain in the upper limb should be thoroughly investigated with the possibility of a Pancoast-syndrome-producing lesion in mind. Earliest surgical exploration is justified because: (1) the lesion may be benign and not necessarily radiosensitive, (2) if it is malignant, it may be resectable or even curable, and (3) if it is not resectable, palliation may be achieved by decompression in an otherwise hopeless and extremely distressing type of tumor.

Dog Bites of the Face. T. L. Barclay. Brit. J. Plast. Surg. 9:34-37 (April) 1956 [Edinburgh, Scotland].

Thirty-one patients with dog bites of the face were operated on with the aid of general anesthesia at a plastic center. Twenty-five patients had tissue loss and six had lacerations without loss. In most of the cases the patients were more to blame for the bites than the dogs. Sepsis was no more a problem in these patients than in others with facial lacerations. Primary healing was uneventful in four patients with nasal injuries, two of whom had partial forehead rhinoplasties and two, postauricular Wolfe grafts. Special attention was paid to bites of the upper lip, which occurred in 13 patients. They were thought to be caused in most patients by damage while kissing the dog. The treatment that gave an immediate final repair with minimal scarring consisted of wedge excision of the affected area; the muscle underlying the defect was excised in an inverted "V" together with skin and mucosa towards the apex, and straight closure of the resulting defect, preferably with a Z-plasty on the vermilion border, was done. The same treatment is applicable to wounds of the lower lip.

Synovial Specimens Obtained by Knee Joint Punch Biopsy: Histologic Study in Joint Diseases. H. A. Zevely, A. J. French, W. M. Mikkelsen and I. F. Duff. Am. J. Med. 20:510-519 (April) 1956 [New York].

This report is based on 55 synovial biopsies of the knees of 49 patients. The instrument and technique used were those developed by Polley and Bickel. For interpretation of the joint fluid characteristics, the normal values reported by Ropes and Bauer were used. The classification of pathological fluids into three groups, also by Ropes and Bauer, was found convenient. Group 1 fluid resembles normal synovial fluid and is representative of traumatic, neuropathic, and degenerative joint effusions. Group 3 is representative of septic effusions, with marked elevation of the leukocytes, predominance of polymorphonuclear leukocytes, and low relative viscosity values. Group 2 is intermediate, particularly with respect to the cell count. The fluids associated with gouty arthritis and with the inflammatory phase of rheumatic fever are often of this type. Those of rheumatoid arthritis can be considered representative of this group but may also be of group 3, depending on the severity of the inflammatory process. It is important to remem-

ber that there are normal variations in the synovial membrane from one anatomic location in the joint to another. According to Kling the suprapatellar bursa near the distal part of the quadriceps tendon is lined by a synovial membrane with sparse cells and few blood vessels overlying the collagenous bundles of the quadriceps tendon. In the proximal portion of the suprapatellar bursa (from which most of the specimens of this study were obtained) the synovial membrane is well developed, has numerous villi, and in places is lined by cells that may form several rows beneath which there is a synovial tissue of loose collagen fibers, varying amounts of fat, and numerous blood vessels.

One mild, transient, symptomatic hemarthrosis was the only complication observed in the 49 patients subjected to punch biopsy of the knee joint. Diagnoses made on the basis of this procedure included gout, rheumatoid arthritis, neuropathic joint disease, and tuberculosis. Although in most of the patients with rheumatoid arthritis the biopsy was not secured for diagnostic purposes, it did yield material characteristic of a rheumatoid process in 17 of 25 patients. The procedure was valuable in the differential diagnosis of monoarticular processes in which tuberculosis and rheumatoid arthritis frequently are the first considerations. The synovial alterations of rheumatoid arthritis, Reiter's syndrome, disseminated lupus erythematosus, and dermatomyositis were qualitatively so similar that the synovial biopsy was not conclusive in differentiating these diseases. Finding urate deposits in the synovium of acutely gouty joints in some patients with nontophaceous gout was not anticipated. This settled the diagnosis in two patients with normal serum uric acid levels. The synovial findings in neuropathic joint diseases were characteristic of these diseases, particularly with respect to the widespread lime salt deposits. Punch biopsy of the knee seems to be a practical diagnostic method in patients in whom conventional arthrotomy is inadvisable and other measures have not revealed the diagnosis.

Considerations on Metastatic Cerebral Tumors: Based on 57 Cases. J.-E. Paillas, J. Bonnal and R. Soulayrol. Semaine hôp. Paris **32**:1537-1541 (May 6) 1956 (In French) [Paris, France].

The authors report on a series of 57 patients with metastatic tumors in the brain verified histologically after 32 surgical removals followed by roentgen therapy, 4 decompressive operations followed by roentgen therapy, and 21 autopsies. Thirty-two of the patients were men and 25 were women; the greatest frequency of cerebral metastasis occurred at about the age of 50 years. There were 16 cases of carcinoma of the lung and 13 of carcinoma of the breast. Usually the metastasis was homolateral to the tumor. In addition to the well-known syndrome of headache with loss of consciousness, 23 patients had papilledema when first seen. Electroencephalography and angiography were useful in locating the metastatic sites, but neither method was wholly satisfactory.

It is difficult to know whether to operate on patients with tumors of the brain that are metastases from malignancies elsewhere in the body. The survival rate among such patients treated in this way is uninspiring; in the authors' series, half the patients were dead nine months after operation. Nevertheless, surgical therapy may be considered when a metastatic cerebral tumor threatens the patient's life directly, when there is reasonable assurance that it is a single nodule, when it is so located that it cannot easily lead to dissemination, and when the primary tumor is located in the breast, kidney, or digestive tract. The prognosis of metastases in the brain from carcinomas of the lung is poor.

Results of the Use of Acrylic Prostheses in Arthroplasty of the Hip. M. J. Kingma. Nederl. tijdschr. geneesk. **100**: 1074-1082 (April 14) 1956 (In Dutch) [Haarlem, Netherlands].

A follow-up study was made on 70 hip joints in which acrylic prostheses had been used in arthroplasties from one to four years previously. The operations had been performed for primary or secondary arthrosis deformans, osteochondrosis of capital epiphysis of femur, epiphysiolysis, chondrodysplasia, congenital dislocation of the hip joint, and ankylosis after arthritis. The results of the arthroplasty operation with acrylic prostheses were disappointing, in that only 36 could be considered successful and 34 were failures. Furthermore, in some instances the results had deteriorated in the course of time. In discussing the factors influencing the success or failure of arthroplasty with acrylic prostheses, the author differentiates between mechanical and biological factors and those attributable to the prosthesis. The position of the prosthesis is the most important of the mechanical factors. The author explains this with the aid of a diagram illustrating the forces acting on the prosthesis. The condition of the soft parts, the reaction of the pelvis and of the neck of the femur to the prosthesis, and the patient's mental make-up are the important factors. Defects of the acrylic prosthesis such as breakage, corrosion, and wear and tear are quite frequent. Loosening of the prosthesis is among the chief causes of deterioration in initially successful arthroplasty with an acrylic prosthesis. The author advises against continuation of arthroplasty with acrylic prostheses and recommends utmost reserve with respect to other methods of arthroplasty of the hip joint.

Experiences with Apicoaxillary Thoracoplasty According to Morelli-DiPaola's Technique in Patients with Cavitary Pulmonary Tuberculosis. P. Kyrle. Wien. med. Wchnschr. **106**: 381-382 (April 28) 1956 (In German) [Vienna, Austria].

Thirteen patients with cavitary pulmonary tuberculosis were subjected to an apicoaxillary thoracoplasty with extrafascial apicolysis according to Morelli-DiPaola's technique. The original method, consisting of a unilateral plastic procedure involving four or five ribs, was used in seven patients on whom an apical plastic procedure was considered sufficient. The original technique was modified by a second-stage operation in three patients with extensive cavitary changes or with an old rigid tertiary cavity. Within from two and one-half weeks to two and one-half months after the original operation this was completed caudally by a paravertebral operation with resection of the sixth and seventh ribs. In the last three patients, who seemed to require an extensive plastic procedure downward, the operation consisted of a newly devised and extended one-stage plastic procedure involving six ribs. Early results of treatment were excellent in 12 patients and satisfactory in one. The advantages of the Morelli-DiPaola operation are as follows: 1. Tissues are spared, and the operative trauma is slight; there is speedy recovery, and surgical indications may be widened in patients of more advanced age with reduced vital capacity and in those with an incompletely stabilized pulmonary process (late recent cavities). 2. An extensive immediate operative collapse results in horizontal and vertical direction from the extensive one-stage procedure; it is particularly significant in patients with larger cavities associated with recurrent hemorrhage and the risk of dissemination from the cavity. 3. The axillary line of incision and sparing of the muscles of the shoulder girdle provide good cosmetic and functional results.

Successful Resections for Bilateral Pulmonary Arteriovenous Fistulas. H. A. Lyons and E. P. Mannix. New England J. Med. **254**:969-974 (May 24) 1956 [Boston].

Over 150 cases of pulmonary arteriovenous fistulas have been reported, but this lesion may still defy early recognition. This is particularly true of bilateral arteriovenous fistula of the lungs, reports of which are rare. Reports of successful bilateral resections of lung tissue containing pulmonary arteriovenous fistulas are even rarer. The authors present what they believe is the third reported case of a patient successfully treated by bilateral lung resection to eradicate pulmonary arteriovenous fistulas. The patient was a 62-year-old woman, in whom bronchogenic neoplasm or pulmonary tuberculosis had been considered the most likely diagnosis. Cerebral symptoms were attributed to some coexistent but unidentified lesion. The probability of an etiological relation between the lesions in the lung and the intracranial lesion causing the subarachnoid hemorrhage was not considered. The patient is an example of one who had dyspnea, mucosal hemangiomas, bilateral pulmonary bruits and a severe gastrointestinal hemorrhage that depressed the blood elements to anemic levels, so that cyanosis and polycythemia were not detected during the period of observation. The patient was subjected to bilateral pulmonary resection, and after that her health improved greatly.

The outstanding features of pulmonary arteriovenous fistulas are cyanosis, clubbing of the fingers, and polycythemia associated with dizziness in the absence of cardiac abnormality, dyspnea, syncope, and dysarthria. Many patients have small capillary hemangiomas of the skin or mucous membranes. Such mucocutaneous telangiectases constitute a very important diagnostic sign. Half the patients have these findings of the Rendu-Osler-Weber syndrome, so that a thorough examination of the skin, nail beds, ears, nose, throat, larynx, and retina in search of angiomas is strongly advocated. Cyanosis dominates the clinical picture, but it may be absent if the shunt is small, and it may disappear after hemorrhage. Epistaxis may be severe. Hemorrhages may arise from arteriovenous fistulas in the gastrointestinal tract or as a result of duodenal ulceration, which is a common accompaniment of polycythemia. Radiological aspects and physiological changes observed in patients with pulmonary arteriovenous fistulas are discussed. The authors believe that the large majority of pulmonary arteriovenous fistulas should be resected, since removal of the lung tissue containing the fistulas is the only effective therapy. The number and location of the lesions may preclude complete ablation because too great a sacrifice of tissue may be necessary. This may be the reason why bilateral pulmonary resection for arteriovenous fistulas has rarely been reported.

Carcinoma in Hiatus Herniae. A. M. Wiley. Postgrad. M. J. **32**: 259-261 (May) 1956 [London, England].

Wiley presents the history of a woman, aged 72, who had been well until four months prior to admission, when she gradually became unable to swallow solids. Her dysphagia was painful, and the pain radiated into her back. She regurgitated solid food soon after swallowing and had lost much weight. On clinical examination no abnormality could be detected, but at esophagoscopy on the day of admission she was found to have a diffuse lower esophageal stricture. Roentgenologic studies suggested a hiatus hernia containing a neoplasm. Worsening of the dysphagia made a jejunostomy necessary, which was followed by rapid improvement. A thoracolaparotomy a month later revealed a sliding hiatus hernia and a mobile growth within the cardia. An esophagogastrostomy was performed, and examination of the surgical specimen revealed an extensive adenocarcinoma of the cardiac end of the stomach. The discovery of a hiatus hernia in association with a lower esophageal or upper gastric carcinoma is not uncommon. A hiatus hernia was found to coexist with esophageal hernia in 10 of 100 patients observed at one hospital between 1948 and 1954. The growth was either at the lower esophagus or the cardia. While it is conceivable that a single factor, esophagitis, may result in fibrosis, periesophagitis, formation of hiatus hernia, and eventually in carcinoma, there are many arguments against such a theory. Evidence suggests that the carcinoma is the initial lesion. One observer suggested that invasion of the lower esophagus by a gastric neoplasm causes esophageal shortening, and that directly or indirectly induced spasm of the esophagus may be a factor in the formation of hiatus hernias.

Alterations in the Sympathetic Ganglia in Patients with Thromboangiitis Obliterans Before and After Unilateral Adrenalectomy. G. Cadili. Minerva chir. **11**:213-219 (March 15) 1956 (In Italian) [Turin, Italy].

The author reports on a series of 20 patients with thromboangiitis obliterans who were 25 to 40 years old. Many of them already had some gangrene in one or two toes, and 13 had undergone unilateral adrenalectomy from nine months to two years before. The local condition had improved markedly, but after some time the disease reappeared. The sympathetic ganglia were removed in some patients at the time of the adrenalectomy and in some at a later date. Histological examination of the ganglia of the first group showed atrophic changes varying in type and intensity in the neurons; chromatolysis; vacuolation; proliferation; fragmentation of the dendrities; thickening of the pericellular capsule; proliferation of the surrounding cells; hyperplasia of the stroma with formation of large areas of fibrosis; thickening of the walls of the arterioles in different stages of evolution, at times to the extent of complete obilteration of the vessel; and dilatation of the capillary and of the small veins, especially in zones without arterioles. All these alterations tend to transform the ganglion into fibrous connective tissue. The alterations in the second group were similar to those of the first group, but less pronounced. The lesions of the ganglia were proportional to the age of the patient and the particular function of the ganglion involved. Ganglial lesions are the result of a general vasculopathy of unknown cause. Adrenalectomy improves the circulation and stops the progress of the disease.

The Hazards After Cholecystectomy, with Review of 500 Case Records. J. M. Yeates. M. J. Australia **1**:646-648 (April 21) 1956 [Sidney, Australia].

The author studied the case records of 500 patients who had undergone a cholecystectomy at Sydney Hospital during the years from 1949 to 1954. All patients underwent elective operations. Complications developed in 67 patients. There were 10 deaths, of which 5 occurred among the 449 patients subjected to cholecystectomy alone, while the other 5 deaths occurred in patients in whom gallbladder removal was combined with duct exploration. Fifty-one or 75% of all complications were directly due to the injury inflicted by the surgeon. The author believes that, if a patient does not thrive after a cholecystectomy, the dressing should be removed and the wound treated. Such an obvious precaution seems in danger of being forgotten in the rush to try the latest drug. The author also feels that some of the complications must be blamed on the patients and perhaps on the doctor. This analysis demonstrated that the "vintage" gallbladder, fibrotic and well-entrenched in the liver, resents being dislodged. It was demonstrated that when stones enter the common duct after having been lodged in the gallbladder for years, the mortality rate of operation rises from 1.1% to 18.2%. Although the average age of the patients was 48 years, the average age of the 10 who died was 63 years. These facts underline the danger in delay. Patient and doctor should realize that once gallstones are discovered, their early removal is mandatory.

Perforating Ulcer. C. K. Schaaning. Nord. med. **55**:507-509 (April 12) 1956 (In Norwegian) [Stockholm, Sweden].

Of the 66 patients with perforating ulcer treated in Opland District Hospital from 1938 to 1954, 36 had a duodenal ulcer, 22 a gastric ulcer, 6 a peptic jejunal ulcer, and 2 a concealed ulcer. The oldest patient was 85, the youngest, 10; the average age was 46. In principle members of the hospital staff favor resection with strict indications: the operation should take place preferably not more than 6 hours after perforation and not over 12 hours after it, the patient should be in good general condition with only slight symptoms of shock, the abdominal conditions should be fairly favorable for resection, and the surgeon should be experienced. Primary resection was performed in 19 cases, with one postoperative death in a patient in whom resection was performed 17 hours after the perforation because suture was impossible. Suture of the ulcer, in 35 cases, was followed by 7 postoperative deaths. Ten patients were treated conservatively, with secondary resection in two. Two patients were moribund on admission and died without treatment. Two patients treated with suture died from peritonitis; the degenerative process in the intestinal wall had spread. On follow-up of 47 patients with at least three years' observation, the 14 patients treated with resection were well. The results were good in 11 of the 25 treated with suture, and 9 of the 14 with recurrence were later treated with resection. The results were good in five of the eight patients treated conservatively.

Unsatisfactory Results After Cholecystectomy. S. H. Lovell. M. J. Australia **1**:644-646 (April 21) 1956 [Sydney, Australia].

The most common type of unsatisfactory result after cholecystectomy is the so-called postcholecystectomy syndrome. It is believed that the principal cause of this unhappy result is an error in the selection of patients for operation rather than an error of operative technique. The postcholecystectomy syndrome is more common when gallstones have not been found during surgery. It is an accepted belief that cholecystectomy for non-

calculous cholecystitis is followed by disappointing results in 65% of cases. The second belief is that a number of patients who initially appear (clinically or on radiological grounds) to be suffering from gallbladder disease would, after further investigation, be found to have some other lesion, such as peptic ulcer, hypertrophic gastritis, hiatus hernia, chronic hepatitis, coronary disease, renal or colonic disease, or even appendicitis. Sometimes gallbladder disease and one of these other lesions may coexist, and prolonged consideration will be required before the decision is made to remove the gallbladder. There again, time spent in a careful assessment is not time wasted.

The percentage of patients in whom a definite pathological entity is found on laparotomy for the postcholecystectomy syndrome is believed to be less than anticipated, and in the series observed by the author the most common finding has been dense adhesion of the pyloroduodenal segment to the region of the gallbladder fossa. However, it is difficult to correlate such pathological findings with the symptoms. Unsatisfactory results other than the postcholecystectomy syndrome were incisional hernia, a persistently painful back after the use of excessive elevation by a gallbladder support of a patient who already has some osteoarthritis of the spine, and postoperative stricture of the common bile or hepatic duct. Occasionally a stricture may be the end-result or a small leakage of bile or blood with low-grade infection. The author recently drained a chronic subphrenic abscess some four years after cholecystectomy. The history indicated that the patient had had a stormy convalescence. Antibiotics had been administered in large doses, and over the intervening period each outburst of activity had been quelled with further doses of these drugs. The possibility that such chronic abscesses may persist is increased by the intensive use of antibiotics.

NEUROLOGY & PSYCHIATRY

Meningoencephalitis of the Marche. F. Russi. Minerva med. 47:514-522 (Feb. 24) 1956 (In Italian) [Turin, Italy].

Meningoencephalitis occurred in the Marche (Italy) in epidemic form in 1945, changed to an endemic-epidemic form for about two years, and since 1951 has been present as an endemic-sporadic disease. In July, 1955, in the city of Ancona, 300 patients were hospitalized with this disease; 175 were children. Several cases occurring in the same family was a common observation. Except for an increase during summer and fall, the incidence was about the same throughout the year. Infants and young people were more affected than older people. Among the latter the disease is often fatal. In 80% of the patients it appeared as a benign lymphocytic meningitis, encephalitic manifestations being less common. The prodromal period, which lasts two or three days, is characterized by general malaise, a slight coryza, sore throat, and at times diarrhea. The first nervous symptoms come suddenly. Cephalalgia or muscular pain in the back and in the lumbar region are always present. Leukocytosis or leukopenia were present in some patients. No specific therapy has been discovered. Sulfonamides and antibiotics were not effective. The best treatment is spinal puncture to stop the cerebral and meningeal pains, combined with thiamine therapy. Radiotherapy has been used in severe cases. The causative organism is unknown, but 100 strains of a single virus were isolated from these patients; 42 from the spinal fluid, 29 from the stools, and 29 from the throat. Preliminary investigations suggest that the virus belongs to the Coxsackie group.

New Treatment of Paralysis Agitans. G. Gianniotti, F. Giberti and S. Spizzirri. Gazz. med. ital. 115:71-74 (March) 1956 (In Italian) [Turin, Italy].

Three groups of patients with extrapyramidal syndromes (paralysis agitans and postencephalitic Parkinsonism) were treated with the new synthetic drug, 10870 or 3-phenyl (b-diethylaminorthyl)-2-6-piperidin-hydrochloride. It acts as a parasympathicolytic and atropine-like agent. The first group of patients was treated only with 10870, the second with 10870 and reserpine, and the third with 10870, reserpine, and ritalin. The results were good in the first group, fair in the second, and poor in the third. The evaluation was based on the patients' personal impressions and on the neurological examination before and after treatment. Hypertonia was much improved, especially in the first and third groups. The tremor and the vegetative and psychic disturbances were also improved. Other symptoms were not affected. Effects on the arterial pressure were not significant exept in one patient with moderate hypotension. The combination was given orally. The minimal doses were 1.25 mg. of 10870, 0.25 mg. of reserpine, and 2.50 mg. of ritalin. The dose was increased progressively every three or five days. The maximal daily doses were 25 mg. of 10870, 4 mg. of reserpine, and 35 mg. of ritalin. The dose was given in four or five portions in order to establish a uniform therapeutic effect throughout the day. The first morning dose was larger than the others. The best results were obtained with large doses given for a long time. Side-effects were noticed in one patient of the first group, in one patient of the third group, and in three of the second group. They consisted of edema of the face, and in some patients in precordial and lumbar pains. Sudden interruption of the therapy resulted in a rapid and increased return of the symptoms of the disease. Gradual interruption of the therapy always caused a return of the original symptoms.

How Brain Lesions Affect Normal and Neurotic Behavior: An Experimental Approach. J. H. Masserman and C. Pechtel. Am. J. Psychiat. 112:865-872 (May) 1956 [Baltimore].

Over a period of six years, 50 cats and 40 monkeys were closely observed for their individual and social characteristics, their capacity to learn various skills, and the form and persistence of the experimental neuroses induced in 23 of the cats and 18 of the monkeys by exposure to adaptational conflicts. The animals were then subjected severally to lesions of the anterior or mediodorsal thalamus, the amygdalae, or cerebral areas 13, 23, or 24. The results to date indicate that the general and specific effects of cerebral lesions vary not only with their site and extent but also with the preoperative experiences of each animal and its postoperative care and retraining. The authors admit that unfortunately studies such as these must contend with a number of variables and unknowns that can at best be only partially dealt with. Furthermore, from the standpoint of comparative neurophysiology, the troublesome question remains as to whether homologous lesions in animals can inform us accurately about functions in the human central nervous system, in which such marked encephalization and other shifts of function have occurred. Nevertheless, these studies have once again helped to substantiate an important clinical maxim: that the permanent effects of a cerebral lesion depend perhaps less on its site or even extent than on the personality of the patient, his significant pretraumatic or preoperative experiences, and the physical and psychiatric care given him during the crucial period of rehabilitation.

Allergy and Multiple Sclerosis: A Critical Review. S. J. Prigal. J. Allergy 27:170-196 (March) 1956 [St. Louis].

Evidence suggesting allergy as a cause of multiple sclerosis has been presented by allergists, immunologists, and pathologists. After reviewing this evidence the author believes that the following conclusions are justified: 1. Conditions resembling multiple sclerosis can be produced in animals by injections with extracts or emulsions of homologous or heterologous brain or cord tissue, with or without adjuvants. 2. An allergic mechanism seems involved in the experimental production of encephalomyelitis. The antigen, not yet identified, is intimately associated with myelin tissue. Homologous or heterologous nervous tissue may be antigenic. 3. The antibodies involved in experimental encephalomyelitis apparently are not capable of passive transfer. Thus far antibrain antibodies have been demonstrated repeatedly by complement fixation and by precipitation or flocculation against brain antigen, but no direct correlation has been shown between the appearance and concentration of these antibodies and the appearance of symptoms in the animal. The specific antibody still requires identification. 4. Results of skin testing with the antigen from heterologous or homologous nervous tissue are inconclusive. 5. There is no complete correlation between experimentally induced encephalomyelitis and multiple sclerosis. Presumably, they both may

be mediated through an allergic mechanism. In experimental encephalomyelitis the allergen is ordinarily introduced by injection. In multiple sclerosis the mechanism remains obscure. Some evidence suggests autosensitivity, implying the release of a latent intrinsic allergen from brain tissue. 6. The central nervous system is subject to a variety of allergic clinical disorders, traceable, as a rule, to extrinsic allergens and producing, ordinarily, reversible symptoms. In contrast, multiple sclerosis would be an irreversible allergic reaction. 7. Experimentally, allergic reactions within the brain, such as the Arthus phenomenon or the carotid syndrome of Forssman, can produce demyelination, but these have no clinical correlation and indicate merely that allergy in the central nervous system may be a factor in demyelination. 8. The development of specific tissue sensitivity (autosensitivity) as an explanation for multiple sclerosis has been considered; however, no mechanism for the clinical development of such an autosensitivity has been elucidated. 9. Infection has been suggested as a factor in the liberation of the antigen from nervous tissue and the induction of self-perpetuating autosensitivity. Possibly cerebral allergy due to an extrinsic cause may initiate a similar mechanism. 10. Demyelination may be produced experimentally by mechanisms other than an antigen-antibody reaction. These include inflammatory reactions, cerebral anoxia, demyelinating enzymes, circulatory disturbances, and metabolic poisons (potassium cyanide, barbiturates). Multiple sclerosis, therefore, may be a syndrome due to a variety of causes, including an intrinsic type of allergy. 11. The pathology of multiple sclerosis is compatible with, but not specific for, an underlying allergic mechanism. 12. Clinical studies of the allergic aspect of multiple sclerosis have been few and inconclusive. An approach limited to a narrow concept of allergy (atopy, involving sensitivity to foods and inhalants and giving immediate positive reactions to skin tests) has not been fruitful and is contrary to the evidence presented experimentally, which indicates that demyelination induced on an allergic basis is nonatopic and is probably a form of autosensitivity.

New Therapeutic Possibilities in Cerebral Arteriosclerosis. A. W. Wittermans. Belg. tijdschr. geneesk. 12:480-483 (May 1) 1956 (In Flemish) [Leuven, Belgium].

Wittermans shows that arteriosclerosis is accompanied by a decrease in the functions of various organs as the result of impairment of the vascular wall. It is a neurosympathetic disorder caused by defects in the metabolism, which in turn cause changes in the enzyme systems that control the anabolism and catabolism of cholesterol and other lipoid compounds. Increased infiltration of the capillary wall by cholesterol reduces its permeability, and this in turn impairs the nutrition and causes sclerotic changes in the cells of various organs. Hypertension and cardiac impairment may develop on the basis of such a sclerosis. The injection of Vasolastine, a combination of the enzymes citrogenase, amino acid oxidase, and tyrosinase, was found to counteract or prevent induced sclerosis in animals, and so the author used it in patients with arteriosclerosis. After the drug was injected three times a week for four weeks into one of the author's patients, improvement was evident. Several weeks may elapse before improvement is noted, but the preparation has a lasting after-effect. It apparently acts on the metabolism, for it increases the synthesis of lipoid phosphorus and the catabolism of cholesterol and of cholesterol esters so that the lipid-phosphorus-cholesterol index increases or becomes normalized. This index is decisive for the permeability of membranes and in preventing the accumulation of cholesterol. The author has used the enzyme preparation in about 60 patients, and the response has been favorable in 80%.

"Polycythemia" Associated with Cerebellar Hemangioblastoma. A. A. Ward Jr., E. L. Foltz and L. M. Knopp. J. Neurosurg. 13:248-258 (May) 1956 [Springfield, Ill.].

Two cases of posterior fossa hemangioblastoma with associated erythrocytosis are described in a 45-year-old and a 32-year-old man. Both patients were operated on. Approximately one-third of an extremely large vascular tumor was removed from the first patient, who did not obtain general improvement in his neurological deficits and who died of aspiration pneumonia four months after the operation. Complete removal of the tumor was accomplished in the second patient. One year after the operation, persisting cerebellar dysfunction could be elicited only on careful neurological examination. Preoperative and postoperative peripheral blood counts and determinations of blood volume were carried out in both patients. They revealed that the preoperative increase in red blood cell count, hemoglobin level, and hematocrit was caused by an increase in erythrocytic elements only and that these values showed a dramatic decrease after surgical removal of the tumor. In the first patient, a postoperative decrease of 7.4% was observed in the red blood cell count, 12.9% in hemoglobin level, and 9.9% in hematocrit. In the second patient, the reductions of these values were 16%, 10.3%, and 16.4% respectively. There was a 25% postoperative decrease in packed cell volume in both patients, a 19% reduction in blood volume, and plasma volume was decreased by 12%. The primary postoperative change was thus in the absolute number of erythrocytes. These findings suggest that previous patients reported on as having polycythemia did, in fact, have only erythrocytosis. The erythrocytosis associated with only the solid type of hemangioblastomas and never with the cystic type may be secondary to the secretion of an erythropoietic hormone by these tumors.

GYNECOLOGY & OBSTETRICS

Placental Passage of 17-Hydroxycorticosteroids: Comparison of the Levels in Maternal and Fetal Plasma and Effect of ACTH and Hydrocortisone Administration. C. J. Migeon, H. Prystowsky, M. M. Grumbach and M. C. Byron. J. Clin. Invest. 35:488-493 (May) 1956 [New York].

A progressive rise in the levels of free plasma 17-hydroxycorticosteroids during the course of pregnancy has been observed by a number of investigators. Normal adult concentrations have been found in the umbilical vein plasma obtained from the newborn infant at the time of delivery, but significantly lower levels were observed in infants born by cesarean section. The site of production and the nature of plasma 17-hydroxycorticosteroids found in increased amounts during pregnancy and at delivery has not yet been elucidated. The present study was designed to clarify the role of placental transmission of free 17-hydroxycorticosteroids and to further identify the corticosteroids found in maternal and fetal circulations. The subjects were 33 pregnant women, 15 to 40 years of age. Vaginal delivery was performed in nine women; cesarean section was deemed advisable in five because of placenta previa or uterine inertia; and 19 had an "elective, repeat cesarean," the section being performed approximately at term and before the onset of labor.

In women undergoing vaginal delivery, labor increased the maternal level of plasma 17-hydroxycorticosteroids over the already elevated value found in the pregnant patient at term. The surgical trauma associated with cesarean section was probably responsible for the increase observed during that operation; the levels, however, were not as elevated as those noted in the vaginal series. The concentrations of 17-hydroxycorticosteroids in cord plasma were about 20 to 50% of those of the corresponding mother in cases of vaginal delivery and 20% or less of those of mothers undergoing "elective, repeat cesarean section." The infusion of 25 mg. of corticotropin over a period of six hours produced a normal increase of the maternal levels. The intravenous administration of compound F to mothers just prior to an elective cesarean section demonstrated that, near the end of gestation, this steroid can go through the "placental barrier" but in a definite proportion, the maternal concentration being the determining factor. From the data presented, it is suggested that, at term, little or no 17-hydroxycorticosteroids are produced by either the fetal adrenals or the fetal side of the placenta. The most probable sites of biosynthesis of such hormones are the maternal adrenals and/or the maternal side of the placenta.

Personal Experience in Modern Medical Treatment of Late Gestosis. M. Giardinelli. Minerva ginec. 8:170-178 (Feb. 29) 1956 (In Italian) [Turin, Italy].

The author reports a series of 120 patients with late gestoses. All the patients were in the sixth to ninth month of pregnancy. Patients with eclampsia were not considered. Thirty-four patients received only hygienic and dietetic treatment. They were ordered to remain in bed in a calm environment. When necessary they were isolated. Laxatives were given. The fluid intake was reduced. The diet stressed milk, fats, and cooked fruits. Proteins were restricted. A diet based mainly on boiled potatoes should have great effect on the diuresis and on the edema. Twenty-two patients with hypertensive nephropathy who were in the seventh, eighth, and ninth month of pregnancy were given 50 to 100 mg. of vitamin PP and 20 to 100 mcg. of vitamin B_{12}; 42 were given 5 to 10 cc. of kidney extract daily; 4 were given 20 to 25 mg. of testosterone a day for a few days; and 7 were given 0.75 mg. of carbachol daily. The effects were evident but poor. Six patients in the seventh month of pregnancy who had hypertensive nephropathy were given fluid extract of ergot.

Improvement followed only after the expulsion of the fetus, which was spontaneous in three patients and induced in the other three. Often ergot when given orally causes nausea and epigastralgia. Ganglionic blocking agents are effective only when there are eclamptogenic complications. Their habit-forming effect makes them useless in hypertensive nephropathy. Reserpine was given to nine patients. Its effect is good in hypertensive syndromes but not in a complex syndrome such as a gestosis. Large doses of sedatives were given often. Of 34 patients who received only hygienic and dietetic treatment and some general sedatives, 25 gave birth to live infants; 3 spontaneously delivered dead fetuses; in 2 the delivery was successfully induced because of the aggravation of the toxemia; and 4 in whom the status of the syndrome remained stationary underwent cesarean section and gave birth to live infants. Of 53 women in the eighth or ninth month of pregnancy who had hypertensive nephropathy treated with antitoxic, antihypertensive, and sedative agents, 43 delivered live infants, 3 delivered dead fetuses, in 6 the delivery had to be induced, and one had to undergo cesarean section because of pelvic complications. Of 33 women taken to the hospital in the sixth or seventh month of pregnancy, only 3 received hygienic-dietetic treatment; all the others received medical treatment. All these patients delivered spontaneously or by induction 5 to 15 days after they entered the hospital because of aggravation of the syndrome. Only three babies survived. The high infant mortality associated with toxemia in the sixth and seventh months of pregnancy could be reduced by taking early prophylactic measures and by early recognition of the signs of gestoses.

PEDIATRICS

Muscular Dystrophy: V. Blood Sugar and Serum Electrolytes Following Insulin and Dextrose, Alone or in Combination. T. S. Danowski, H. K. Gillespie, T. J. Egan and others. A. M. A. J. Dis. Child. 91:429-435 (May) 1956 [Chicago].

Patients with muscular dystrophy can readily dispose of carbohydrate loads. The fact that in muscular dystrophy the muscles that form the bulk of the body tissues in which glucose may be utilized are diseased suggests that the effective disposal of such carbohydrate loads is achieved by a greater reliance on pathways other than those in muscle. Healthy boys and girls in a children's home and children with a diagnosis of the juvenile form of muscular dystrophy were given crystalline insulin and dextrose, intravenously, alone or in combination. Although children with muscular dystrophy responded to intravenously injected insulin with venous blood sugar changes that were indistinguishable from those in healthy children, there was evidence of altered carbohydrate disposal in that the characteristic decreases in serum inorganic phosphorus, potassium, and bicarbonate that follow insulin administration were of distinctly smaller magnitude. The injection of dextrose intravenously produced comparable rises and subsequent falls in the levels of blood sugar in the dystrophic children and in the control group. The smaller decrement in serum inorganic phosphorus reported by other workers in a small number of patients with this disease was not evident in this larger group of children. Insulin and dextrose in combination produced hyperglycemia in patients with muscular dystrophy and hypoglycemia in control subjects. This inadequate disposal of glucose from exogenous and perhaps endogenous sources is compatible with decreased extrahepatic utilization as a result of diseased musculature with resultant smaller changes in serum inorganic phosphorus and potassium. An alternative explanation that the hyperglycemia is attributable to inadequate deposition of glucose as liver glycogen in the presence of insulin and carbohydrate seems unlikely in view of the demonstration that in liver disease the phosphorus decrease is exaggerated rather than diminished as it is in the patients with dystrophy.

Rehabilitation of Poliomyelitis-Stricken Children. G. Poli and M. Valle. Minerva pediat. 8:325-329 (March 17) 1956 (In Italian) [Turin, Italy].

In Italy, 80% of the poliomyelitis occurs in infants under 2 years of age. On admission the authors advise vaccinating the infants against diphtheria and whooping cough whether or not they have been vaccinated before. Smallpox is the only infectious disease that has occurred among the infants the authors have treated for poliomyelitis. In Italy, poliomyelitis has so far been a sporadic disease. Most of these patients are brought to a physician only after they have already been stricken with paralysis. This limits the physician's task to preventing the spreading of the paralysis. The infant is kept in bed as long as possible. When necessary, barbital or other sedatives are used. A device is used in each case to keep the blankets from weighing on the stricken joints. A slow and gentle change of position performed with the help of a nurse is allowed every three or four hours. If poliomyelitis has affected the lower joints, the knees are kept slightly flexed and the feet are kept at a right angle. Splints are never used during the first part of therapy. The treatment changes radically after two or three weeks when there is no more danger of incurring lesions in the spinal cord. The child is taught to perform some segmental active exercises with progressive frequency. Heat is used to decrease the neurovegetative disturbances, to maintain the muscle in good condition of nutrition and of trophism, and to eliminate the pains. The age of the patient requires that a highly trained staff take the place of the mother during the infants' stay in the hospital; these patients must never be left alone. Contractures are corrected by performing passive movements in warm water. Gradual improvements are fixed with a removable splint. After final results have been achieved, a fixed plaster cast is used. Surgery is employed when contractures cannot be reduced otherwise. Surgical treatment is confined only to tenotomy or tenoplasty. Any other operation should be used only after the skeleton of the infant offers sufficient resistance.

Muscular Dystrophy: VI. Diminished Blood Sugar and Serum Electrolyte Responses to Epinephrine. E. B. Fergus, W. R. Nichols, L. M. Horne and T. S. Danowski. A. M. A. J. Dis. Child. 91:436-441 (May) 1956 [Chicago].

The studies described in this paper are concerned with the blood sugar and serum electrolyte responses following the subcutaneous administration of epinephrine to healthy subjects and to patients with muscular dystrophy. A 1:1,000 aqueous solution of epinephrine (free of arterenol [norepinephrine]) was injected subcutaneously into healthy subjects and into patients with muscular dystrophy. Following an overnight fast, 0.01 ml. per kilogram of body weight was administered in divided dosage at 0, 10, and 20 minutes. Samples of venous blood for blood sugar and serum electrolyte analyses were obtained with minimal stasis at 0, 30, 60, 90, and 120 minutes. It was found that the subcutaneous injection of epinephrine produced a smaller degree of hyperglycemia in patients with muscular dystrophy than that observed in control subjects. This may reflect a lower phosphorylase response, tenacious hepatic glycogen stores unresponsive to phosphorylase, or diminished amounts of liver glycogen. In contrast to current views, the data obtained in these studies are compatible with the fact, but do not establish the possibility, that epinephrine hyperglycemia originates

in part from a release of liver glycogen and in part from a conversion of muscle glycogen to lactic acid, liver glycogen, and ultimately blood sugar. Functionally defective or decreased stores of muscle glycogen could then account for the lesser epinephrine hyperglycemia in muscular dystrophy. The smaller decrease in serum inorganic phosphorus, in potassium, and in serum total carbon dioxide content in muscular dystrophy are all compatible with a smaller carbohydrate load and a lower degree of acceleration in carbohydrate metabolism after the injection of epinephrine. The lower electrolyte changes cited above argue against the second possibility, that in muscular dystrophy the usual epinephrine blockade of glucose assimilation or disposal in peripheral tissues is diminished, thereby accounting for the lower degree of hyperglycemia. The results obtained in the present studies do not exclude the possibility that in muscular dystrophy there is a decreased contribution from gluconeogenesis to the epinephrine hyperglycemia.

Muscular Dystrophy: VIII. Trials of Protein Hydrolysate, Vitamin Supplements, and Physical Therapy. J. S. Donaldson, M. J. Wratney, A. Pascassio and others. A. M. A. J. Dis. Child. 91:449-453 (May) 1956 [Chicago].

Reports that ingestion of a protein hydrolysate together with a vitamin preparation produces distinct clinical improvement in muscular dystrophy induced the authors to try this regimen in children believed to have this disease. The results obtained were compared with those obtained with physical therapy alone as well as with the spontaneous changes which occur without hydrolysate and without physical therapy. Twenty-nine children with muscular dystrophy, 2 to 15 years of age, were observed at intervals by a physical therapist, an orthopedist, and a physician. In all of these patients the diagnosis seemed justified by virtue of the physical and histological findings. Serial measurements of muscle strength were made in the following three groups of such patients: (1) children with muscular dystrophy not under treatment or just receiving vitamins, (2) those maintained on protein hydrolysate and vitamin supplements without physical therapy, and (3) children maintained on the protein-hydrolysate-vitamin regimen while receiving physical therapy. Serial measurements in children with muscular dystrophy revealed losses of motor power despite a regimen of protein hydrolysate and vitamin supplementation, with or without physical therapy, during periods up to one year or more in length. Occasional slight improvement during such therapy was also noted in one of the patients under observation without any treatment whatsoever. The favorable reports obtained from the patients and their families suggesting improvement during one or the other of the regimens represented optimistic hope or possibly the acquisition of a greater skill through physical therapy and encouragement in using remaining motor strength. The data obtained did not permit the authors to decide whether the rate of deterioration was altered during any of the regimens tested. The importance of not interfering with a patient's own postural or functional adjustments to his disability became evident during serial visits for muscle treatment and examination. The protein hydrolysate and vitamins did not discernibly alter the somewhat elevated fasting levels of serum calcium and phosphorus previously shown to be present in children with muscular dystrophy.

UROLOGY

Present Status of Treatment of Carcinoma of Prostate with Radioactive Materials. G. J. Bulkley, J. A. D. Cooper and V. J. O'Conor. J. Urol. 75:837-845 (May) 1956 [Baltimore].

Between April, 1953, and August, 1955, 44 patients with carcinoma of the prostate were treated by interstitial irradiation with isotopes including radioactive gold (Au^{198}), chromic phosphate (P^{32}), and yttrium chloride (Yt^{90}). Perineal injection, using multiple needles introduced into the perineum and guided to the various portions of the tumor mass by a finger in the rectum, was carried out in 41 patients, and in the first three patients the isotope was injected by the suprapubic and retropubic route as described by Flocks. The method of perineal injection was preferred because of its simplicity, the short hospital stay, and low morbidity. The size of the prostate was estimated and a dose of about 2 mc. per gram in the case of gold and about 1 mc. per gram in the case of phosphorus and yttrium was used. Before the injection of the isotope, a catheter was introduced into the bladder and left indwelling in order to collect the radioactive urine. This catheter was left in place for 48 to 72 hours, until significant radioactivity was no longer present in the urine. Urinary excretion of the injected isotope occurred chiefly during the first 48 hours. At times a preliminary transurethral resection of the bladder neck was done in order to reduce the mass of the tumor and to ensure that the patient would be able to urinate postoperatively. The average hospital stay of patients who received a perineal injection was four to seven days.

Of 34 patients who were given injections of Au^{198} in doses of 45 to 180 mc. 9 died of their disease, 10 are living and have extensive carcinoma locally as well as in distant organs, and 15 are living and doing well after the injection, having been followed up for periods up to two years. The five patients who received intraprostatic injections of P^{32} in doses of 21.5 to 39 mc. showed little response symptomatically. Rectally, the prostate remained hard, nodular, and fixed, with little of the softening and shrinking often observed after gold injection. Two of these five patients had serious hematological complications. Of the five patients who were given intraprostatic injections of Yt^{90} in doses of 10.5 to 39 mc., one died of extensive carcinomatosis 10 days after the injection; death did not seem to have any relation to the injection. Two patients still living were without subjective or objective improvement. Two patients obtained clinical improvement, with findings of rectal softening and shrinking of the prostate.

Blood levels of isotope reached a peak within the first three minutes after the injection and were surprisingly high in some patients. Autopsies performed on seven patients treated with injections of Au^{198} showed local destruction of the tumor and healing by fibrosis, but this effect did not include the entire tumor mass, and there was little lymph node destruction. The authors believe that interstitial irradiation with Au^{198} is potentially an effective and safe method of destroying prostatic carcinoma, but, as employed at present, it is not a curative method. Results comparable to those obtained with Au^{198} are obtainable with Yt^{90}, which emits only beta irradiation of great energy and is much safer for patient and operator because of the absence of gamma rays. Further studies with this isotope are warranted.

Diagnosis of Intermittent Hydronephrosis: Importance of Pyelography During Episodes of Pain. R. M. Nesbit. J. Urol. 75:767-771 (May) 1956 [Baltimore].

A 44-year-old woman was studied because of recurrent attacks of pain in the left upper abdominal quadrant accompanied by nausea and vomiting. All studies including normal excretory urograms failed to reveal the cause of her pain. While still in the hospital she had one of her attacks, which was believed to be typical of Dietl's crisis. Cystoscopy was performed during the attack and retrograde pyelograms were made, which revealed the presence of a dilated renal pelvis not present the day before. Operation revealed an aberrant vessel, which was the cause of the disorder. After this experience the author advised repeated excretory urograms during an attack of pain in any patient suspected of having intermittent hydronephrosis whose original pyelograms were normal. Three illustrative cases are described that show the value of pyelography during an attack of pain. Patients who suffer from attacks of intermittent hydronephrosis may have pyelograms that are entirely normal between attacks. In such patients the urologist will miss the diagnosis completely if he assumes that normal pyelograms exclude the diagnosis of intermittent hydronephrosis. The procedure of getting repeated excretory urograms during an attack of pain may cause inconvenient delays in many cases, but it has resulted in establishing a diagnosis of intermittent hydronephrosis in many others. It also made it possible to exclude the diagnosis in patients in whom normal pyelograms were made during typical attacks of pain.

Urologic Pathology Mimicking Intra-Abdominal Conditions. C. L. Wilson and M. C. Wilson. Am. Surgeon **22**:372-381 (April) 1956 [Baltimore].

The wide variations in clinical syndromes that may arise from disease in the urinary tract and their possible similarity to symptoms usually originating in other abdominal organs can be understood if we bear in mind the fact that the upper urinary tract has almost identical innervation with the gastrointestinal tract, both systems contain hollow viscera capable of producing colicky pain on obstruction, and the kidneys and ureters are in close association with the parietal peritoneum. Unsuspected urologic lesions can simulate diseased conditions of any abdominal organ. The authors present histories of 10 patients, whose urologic disorders simulated such conditions as appendicitis, ileus, colitis, gallbladder disease, blackwater fever, stomach ulcer, liver disease, postpartum sepsis, and tubal pregnancy. These case histories emphasize the following facts: 1. A normal urine does not rule out serious urologic disease. 2. Careful history taking and physical examination may be of little value or at times misleading. 3. An intravenous pyelography may frequently settle the issue in 30 minutes or less. It may be done without preparation and does not cause a critical delay even in an acute abdominal emergency. 4. Intravenous pyelography should be a routine procedure in any patients with abdominal complaints when the diagnosis is obscure.

THERAPEUTICS

The Effect of Parahydroxypropiophenone on Patients with Hyperthyroidism. F. Del Regno. Riforma med. **70**:469-473 (April 28) 1956 (In Italian) [Naples, Italy].

The author studied the effects of parahydroxypropiophenone on 10 patients with mild hyperthyroidism. Their ages ranged from 20 to 45 years. Seven were women and three were men. Tachycardia, tachypnea, hyperexcitability, psychic instability, tremor, exophthalmos, loss of weight, and some fever were present in all the patients. The basal metabolic rate was +20% to +30%. The dosage of the drug was 3 gm. a day for the first 10 days and 2 gm. a day for the next 20 days. Other sedatives were combined with the drug in a few cases. The diet was complete but low in animal proteins. The patients were not allowed to smoke or drink alcohol or coffee. Reduction in the volume of the thyroid gland and of the exophthalmos followed in all patients. Tachycardia, hyperexcitability, psychic instability, and tremor were little affected. The drug did not affect the fever or the body weight. The basal metabolic rate decreased but did not become normal. Iodemia decreased markedly. The values of specific dynamic action were decreased in some of the patients. The drug had no effect on the calcemia or on the phosphoremia. The best effect of the drug was in reducing the size of the gland, an effect not obtained with any other drug. The combination of the drug with thiouracil had a positive effect in the treatment of exophthalmic goiter, especially if given prior to surgical treatment.

Study on the Effect of Overdoses of Pentylenetetrazol and Barbiturate Combinations in Human Volunteers. J. F. Fazekas, L. R. Goldbaum, T. Koppanyi and J. G. Shea. Am. J. M. Sc. **231**:531-541 (May) 1956 [Philadelphia].

In a previous study it was shown that the ingestion of large doses of pentylenetetrazol and pentobarbital sodium combinations delayed the onset of sleep and produced no untoward effects. The present study was undertaken to determine (1) the relative toxic effects on humans of combinations of pentylenetetrazol with pentobarbital sodium, secobarbital sodium, and phenobarbital sodium respectively; (2) the duration of action of these combinations as evidenced by clinical signs and blood levels; and (3) the protective effect afforded by pentylenetetrazol in these combinations. In addition, large doses of pentobarbital alone were administered to a control group of volunteers to illustrate more clearly the magnitude of the protective effect of pentylenetetrazol when taken simultaneously with barbiturates.

The authors emphasize the following points: 1. The ingestion of from 1,300 to 2,000 mg. of pentobarbital simultaneously with three times the amount of pentylenetetrazol produced no anesthesia nor severe central depression in human volunteers. The ingestion of from 800 to 1,000 mg. of pentobarbital alone, however, usually resulted in marked central nervous system depression and, in most persons, light surgical anesthesia. 2. Pentobarbital was absorbed more rapidly from the gastrointestinal tract than fixed mixtures of pentobarbital and pentylenetetrazol. 3. The rate of disappearance of pentobarbital from the blood was the same in both groups, about 1.5% of the ingested dose per hour. 4. Subjects ingesting secobarbital in doses of 1,300 to 1,500 mg. with three times the amount of pentylenetetrazol showed no signs of marked barbiturate depression. The rate of fall of the blood levels was about 2.3% per hour. 5. Subjects ingesting phenobarbital in doses of 2,000 to 4,100 mg. with one and one-half times as much pentylenetetrazol were only sedated and could easily be aroused. The rate of disappearance of this barbiturate from the blood was about 0.7% per hour. 6. Many subjects who took the barbiturate-pentylenetetrazol combinations vomited, indicating denarcotization of the vomiting mechanism. 7. The control experiments, as well as published reports, indicate that pentylenetetrazol is an efficient preventative when taken simultaneously with coma-inducing or possibly fatal doses of barbiturates. 8. Pentylenetetrazol given in these combinations and in the above stated dose ranges did not produce convulsions. Therefore, in human subjects, under the above conditions, pentylenetetrazol and barbiturates are mutually antagonistic.

The Response to Rescinnamine Administered Parenterally and Orally for the Treatment of Hypertension. R. L. Hershberger, E. W. Dennis and J. H. Moyer. Am. J. M. Sc. **231**:542-557 (May) 1956 [Philadelphia].

Originally it was thought that reserpine was the only alkaloid derived from Rauwolfia serpentina with an antihypertensive effect, but since the known compounds accounted for less than 50% of the activity of alseroxylon (Rauwiloid), additional active principles were searched for in the amorphous portion of this preparation. Klohs and his co-workers succeeded in extracting the trimethoxycinnamic ester of methyl reserpate that has been designated rescinnamine. Twenty-six hypertensive patients were given rescinnamine by parenteral injection. They had been given placebos for a month, and during this period their control blood pressure levels were established. Then each patient received parenteral injections of rescinnamine followed by supine and upright blood pressure determinations every 30 minutes for the ensuing 6 to 24 hours. In patients who participated in two or more tests, the test periods were separated by one or two weeks during which time placebos were given. Several patients received the drug intravenously in 200 ml. of dextrose solution, and the remaining patients received the drug by intramuscular injection. No difference in response between the two routes of administration was observed. In order to establish the optimal therapeutic dose, increasing doses of the drug varying from 2.5 to 15 mg. were given.

Blood pressure response and evaluation of side-effects established the optimal dose to be 10 mg. when given parenterally. Of 20 patients who received this dose, 18 showed a significant reduction in mean arterial pressure within five hours after administration of the drug; 14 became normotensive. Eighty-four hypertensive patients received rescinnamine by mouth on an outpatient status over a period of two months or more. Forty of the 84 patients treated for two months showed a significant reduction in pressure at the end of this time, and over half of those treated for four months or more showed a significant reduction in mean arterial pressure. The response to the drug was not necessarily dependent on the severity of the hypertension, but, of the patients who became normotensive, only three were from the group with the more severe hypertension. Rescinnamine is equally as effective in the reduction of blood pressure as reserpine. Its administration is accompanied by much the same qualitative side-effects as noted after reserpine, but the severity of some side-effects was less.

PATHOLOGY

Four Cases of Death in BCG-Vaccinated Persons, Apparently Due to Vaccination. F. Van Deinse. Hospital 49:431-438 (April) 1956 (In Portuguese) [Rio de Janeiro, Brazil].

Four deaths in infants, children, and adolescents vaccinated with BCG were reported in the literature between 1950 and 1954. Vaccination was apparently the cause of death. No previous deaths as a result of tuberculosis in vaccinated persons have been reported. The author investigated the conditions common to all the patients, in all of whom the tuberculin reactions were weak, transient, or negative. Cultures prepared with material from the patients' lesions, pathological exudates, or material from a gastric lavage behaved in culture media and when inoculated to guinea pigs as if they were cultures of Mycobacterium tuberculosis. Antibiotic treatment failed. The results of histological examination of biopsy or autopsy material did not show typical lesions of tuberculosis. The author believes that the cause of the aforementioned deaths was a reticuloendotheliosis. Myco. tuberculosis (if they appeared in the pathologic material) had only the significance that Hemophilus influenzae has when appearing in the course of influenzal pneumonia or Salmonella suipestifer in the course of hog cholera. Contamination with virulent Myco. tuberculosis in these patients may have occurred prior to the administration of the vaccine, such as has occurred in cases of tuberculous meningitis that develop in the first few months following BCG vaccination.

Acute Focal Appendicitis. J. R. Schenken, T. R. Anderson and F. C. Coleman. Am. J. Clin. Path. 26:352-359 (April) 1956 [Baltimore].

Not infrequently the pathologist fails to find histopathological changes in a surgically resected vermiform appendix from a patient with typical symptoms and signs of acute appendicitis. It has been suggested that these apparent discrepancies may result in part from variable histopathological techniques. In routine histological sections of resected appendixes from patients with a clinical diagnosis of acute appendicitis, the authors repeatedly observed purulent material in the lumen without demonstrable exudate in the mucosa or wall of the appendix. They called this condition "acute focal appendicitis." They describe observations on 2,750 appendixes studied during 1952 and 1953. In appendixes examined before 1952, the tip was bisected longitudinally in order to examine the luminal contents, but these were frequently dislodged and lost during processing. The method of longitudinally incising the appendiceal wall and rolling the flattened organ was also inadequate inasmuch as preservation of luminal contents is necessary for recognition of acute focal appendicitis. During 1952 and 1953 all appendixes were cross sectioned and five tissue blocks obtained, i.e., three from the tip, one from the body, and one from the proximal end. Of the 2,750 appendixes sectioned, 32.8% showed evidence of acute focal appendicitis. The clinical correlation with the pathological lesion of acute focal appendicitis was similar in all respects to that reported in acute diffuse suppurative inflammation of the appendix. Follow-up studies one to three years after appendectomy indicated that the symptoms and signs for which the operation was performed were completely relieved. The authors conclude that histological examinations that disregard exudate in the lumen with no inflammation in the wall of the appendix may lead to unnecessary and unjust criticism of a conscientious and competent surgical staff.

PUBLIC HEALTH

Soil Nitrification and Nitrates in Waters. E. L. Schmidt. Pub. Health Rep. 71:497-503 (May) 1956 [Washington, D. C.].

Young infants, usually less than 2 months old, have acquired methemoglobinemia as a result of ingesting water high in nitrates. The ingested nitrate may oxidize a portion of the hemoglobin to methemoglobin with consequent loss in oxygen transport and oxygen exchange in the blood. If severe, the anoxemia may produce serious effects, and death may occur. Methemoglobinemia induced by well waters high in nitrates have been reported principally in the midwestern United States and the central Provinces of Canada. Although the high nitrate content of most of the wells studied apparently was associated with nearby sources of pollution, the origin of the nitrates that accumulate in ground waters was not always clear. In order to investigate the possible relation between nitrate production in soil and nitrate concentration in waters, data on 39 water supplies from 26 sites in four counties of Minnesota were obtained. Samples of 59 surface soils and 50 subsurface soils associated with these waters were studied in the laboratory for nitrate content. The surface soils were also studied for capacity to produce nitrates. The 16 water supplies that were sampled a second time during the summer gave evidence that the nitrate content of the water supplies fluctuated significantly during a five-to-six-week period. These fluctuations were considered to be due largely to soil leaching associated with the rainfall distribution. Changes in the nitrate content of the surface soils correlated well with changes in the nitrate content of the water supplies. The nitrifying capacities of the soils remained essentially constant for the two samplings. Soils contaminated with organic nitrogen by livestock had the highest nitrifying capacities. The water supplies with the highest concentrations of nitrate (75 to 130 ppm) were located near such soils, but not all water supplies near contaminated soils had unusually high nitrate content. Normal field soils in pastures, sod, or fields under cultivation near the very high nitrate waters were generally much lower in nitrifying capacity, but many of the normal field soils exhibited high nitrifying capacity despite the absence of abnormal additions of organic nitrogen. Such field soils were associated with subsoil drainage waters of up to 18 ppm of nitrate nitrogen and well waters of up to 35 ppm of nitrate nitrogen. It seems possible that soils of very high nitrifying capacity may sometimes contribute to the nitrate content of water supplies ordinarily considered to be satisfactorily located.

Continued High Incidence of Diphtheria in a Well-Immunized Community. W. J. Murphy, V. H. Maley and L. Dick. Pub. Health Rep. 71:481-486 (May) 1956 [Washington, D. C.].

The continued high incidence of diphtheria in Hall County, in north Georgia, is of interest in view of the general decline throughout the United States and in most areas of Georgia. Although a variety of factors may have contributed to the Hall County experience, this study was concerned primarily with the extent of active immunization, the prevailing strain of Corynebacterium diphtheriae, and the frequency with which clinical infections occurred among the immunized. It was found that from 1935 to 1953 the incidence of diphtheria in Hall County failed to decline in spite of a well-organized immunization program. A study based on a sample of live births indicates that at least 60% of the infants born in the county received an immunizing agent against diphtheria by the time they were one year old and nearly 100% of the children were immunized by the time they were 6 years old. A review of the cases of diphtheria reported from 1949 to 1953 indicated that active immunization afforded an appreciable degree of protection. Of the cases observed among previously inoculated children, the great majority occurred after inadequate dosage or after protection had been permitted to lapse. The high diphtheria incidence in Hall County may be associated with an unusually aggressive strain of C. diphtheriae. Since October, 1948, when routine typing was begun, more than 90% of the cultures from that county and almost 70% of the cultures from neighboring counties have been gravis strains. The clinical manifestations of the disease have not been unusual, and case fatality rates have not been excessive, even among the unimmunized. The association of a gravis strain with the continued high incidence of diphtheria in Hall County is not necessarily peculiar to that type of C. diphtheriae. Presumably, other types might be involved elsewhere in similar situations.

BOOK REVIEWS

Epitome of the Pharmacopeia of the United States and the National Formulary with Comments. Issued under direction and supervision of Council on Pharmacy and Chemistry of American Medical Association. Tenth edition. Cloth. $3. Pp. 322. J. B. Lippincott Company, 227-231 S. Sixth St., Philadelphia 5; 2083 Guy St., Montreal, Canada, 1955.

This publication of the Council of Pharmacy and Chemistry of the American Medical Association was first issued in 1907 as the Physician's Manual of the U. S. Pharmacopeia and National Formulary. Nine years later the title was changed to its present form. The original title was perhaps more descriptive of the contents, since, in addition to being a précis of the two official publications, it contains details of dosage, actions, and uses of drugs and draws attention to the shortcomings of certain preparations. Because of a reduction in the amount of small type, the typography is more pleasing than in previous editions. There is a good index and a useful series of tables of weights and measures. This book, with New and Nonofficial Remedies, should serve practicing physicians as a useful source of information concerning drugs in everyday use.

Allergy in Childhood. By Jerome Glaser, M.D., Assistant Professor of Pediatrics, University of Rochester School of Medicine and Dentistry, Rochester, New York. Publication number 272, American Lecture Series, monograph in Bannerstone Division of American Lectures in Allergy. Edited by Max Samter, M.D., Chief, Allergy Clinic, Research and Educational Hospitals, University of Illinois, Chicago. Cloth. $12.50. Pp. 529, with 42 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 24-25 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto, 2B, Canada, 1956.

Although this textbook covers virtually every allergic manifestation, many subjects are covered in an uncritical fashion, since the chapters are essentially reviews of selected articles, which themselves are not necessarily representative. On some other aspects the author is definitely opinionated. For example, wool clothing or a rabbit's foot in a child's pocket are mentioned seriously as causes of allergy. Feeding of cow's milk to infants from families with a history of allergy is blamed for a fourfold increase of allergy in childhood to other allergens, such as pollen and dust. No satisfactory explanation for this phenomenon is offered. An unnecessary number of long case reports pads the book. In the introduction the author says: "For those who wish to enter pediatric allergy it assumes a preliminary knowledge of the subject. . . . For this reason the text does not go into detail concerning phases of theory and practice of allergy." It is difficult to see how, even for such a restricted group of readers, one can justify omitting the highly essential basic knowledge of antigens and antibodies, the modern and exciting developments that are going on in many research institutions, and the elementary data about such items as pollens, molds, and other allergens so vital to practical allergy.

Impartial Medical Testimony: A Report by a Special Committee of the Association of the Bar of the City of New York on the Medical Expert Testimony Project. Cloth. $3.95. Pp. 188. The Macmillan Company, 60 Fifth Ave., New York 11; Macmillan Co. of Canada, Ltd., 70 Bond St., Toronto 2, Canada, 1956.

Between December, 1952, and December, 1954, a Medical Expert Testimony Project was conducted in metropolitan New York. The idea was conceived by the justices of the Supreme Court of New York County, who were concerned about the problem inherent in the practice of presenting medical evidence solely through partisan experts hired by the parties to law suits. With the cooperation of the judiciary, the Bar Association of the City of New York, the New York Academy of Medicine, and the New York County Medical Society, a program was devised to reduce "the battle of experts." Essentially the plan sought to solve two problems: finding impartial medical experts and making them available, and establishing a procedure for selecting cases in which the program might be helpful. The results are reported in this book, which includes a history of the proposal, mention of the way in which the project's financing was accomplished, how the plan developed on paper, how it was finally put into practice, and how it operated. The bulk of the report discusses the experiences under the project thoroughly and with adequate case reports. Little actual experience encountered in the trial of the project is omitted. The project is described objectively, and its merits and faults are given with proper emphasis. Nowhere does the report suggest that a panacea has been found to eliminate the expert testimony problem. Another section of the book includes a report prepared by the medical consultants and contains frank comments by them concerning the use and effect of the project. The report is supplemented by a number of exhibits, which include discussions of the project by judges and medical experts who formed panels of witnesses. Notes on cases reviewed by the consultants to the committee are also included. The mechanical steps of the project, such as instructions to attorneys, information for specialists, certification of physicians' bills, and the range of the medical fees, are also well covered in exhibits. Because of the report's objectivity and because of the exhibits, the book should be read by all who are interested in improving the legal situation that exists in our courts when physicians are called on to express their opinions as experts on medical matters in adversary proceeding.

Color Atlas of Oral Pathology: Histology and Embryology, Developmental Disturbances, Diseases of the Teeth and Supporting Structures, Diseases of the Oral Mucosa and Jaws, Neoplasms. Prepared under auspices of U. S. Naval Dental School of National Naval Medical Center, Bethesda, Md. Cloth. $12. Pp. 188, with 461 illustrations in color. J. B. Lippincott Company, 227-231 S. Sixth St., Philadelphia 5; 2083 Guy St., Montreal, Canada, 1956.

This atlas is well organized, of handy size, and profusely illustrated; the accompanying text is concise and authoritative. The material is grouped into five sections covering histology and embryology, developmental disturbances, diseases of teeth and supporting structures, diseases of the oral mucosa and jaws, and neoplasms. In general, diseases with similar causes are grouped together and others are arranged according to anatomic site. Each page contains three uniformly sized illustrations with a brief descriptive text containing a precise definition of each entity, a description of the illustrations, both histological and gross, and other pertinent information. There are 20 pages of references; the index appears to be complete. The book should appeal to student, teacher, and clinician, for it is an excellent graphic reference guide.

The Biliary Tract with Special Reference to the Common Bile Duct. By Julian A. Sterling, A.B., M.D., M.Med.Sc., Staff Surgeon, Albert Einstein Medical Center and Graduate Hospital, Philadelphia. Cloth. $10. Pp. 424, with 94 illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2, 1955.

This book is primarily concerned with diseases of the common bile duct and the papilla of Vater and their management. The author has covered these subjects exhaustively, often drawing on his own personal studies and experiences. The chapters on anatomy and physiology are particularly outstanding and include much new material. Since the author is a surgeon, the subject of surgical management is treated at full length; and the chapter on anesthesia is good. Radiology is also well covered. Other aspects of the subject as well as the related fields, such as the gallbladder, pancreas, and liver, are discussed in a rather cursory fashion and often in outline form. The book is well illustrated; references are selected. Some chapters are well done, but others are superficial and poor reading. The book can be recommended to those interested in the primary subject.

These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated.

QUERIES AND MINOR NOTES

SORE THROAT

To the Editor:—*A 40-year-old man has complained of sore throats for three or four months. Throat cultures were taken, and Streptococcus viridans was isolated. The patient was then given one million units of penicillin daily for three days, and on the fourth day he was given a single dose of 1,200,000 units of Bicillin intramuscularly. Two weeks later a throat culture was repeated and Str. viridans was again isolated. What therapy and what dosage is now suggested?*

Paul Russell, M.D., Inglewood, Calif.

Answer.—Sore throat is a generic term that could be a sign or a symptom of a variety of pathological states. It would be important to have additional information other than the bacterial one, such as a more exact description of the mesopharynx, as well as the pharynx, nasopharynx, and hypopharynx; knowledge of the presence or absence of fever; the blood cell count; the sedimentation rate; the heterophil antigen index; and such data that would constitute a thorough understanding relative to the sources of sore throat. The presence of Streptococcus viridans in a pharynx or nasopharynx is not to be considered overly significant, inasmuch as this organism is normally present in the bacterial flora. It is quite possible that certain causes of sore throat have been overlooked by concentrating on this insignificant finding. Therapy would, therefore, be dependent on a more exact diagnosis. Either penicillin would need to be given over a longer period of time or additional "sulfa" medication should be given in conjunction, if basically the problem was bacteriological.

RHEUMATOID ARTHRITIS

To the Editor:—*Should corticotropin (ACTH) be given in the long-term treatment of rheumatoid arthritis with prednisone (meticorten)? If so, please state the dosage of corticotropin. On the day the patient receives corticotropin should meticorten therapy be discontinued?*

M.D., Ohio.

Answer.—Some investigators have advised injections of corticotropin during prolonged administration of corticosteroid for treatment of rheumatoid arthritis. When used in this way, corticotropin usually is injected intramuscularly in the form of a slow-absorbing preparation, such as corticotropin in gelatin or zinc-corticotropin, three or four times weekly in doses of 20 or 30 units. It is used to supplement, not substitute for, the corticosteroid; therapy is continued uninterruptedly.

The rationale for such combined hormone therapy is to prevent or lessen the adrenocortical suppression that results from prolonged administration of adrenocortical hormone. Since adequate corticosteroid therapy alone will accomplish antirheumatic effects comparable to combined hormone therapy, prevention of suppression of adrenocortical function would be the only advantage of combining corticotropin and steroid therapy. But is this a significant advantage? There is no problem because of adrenocortical suppression during corticosteroid therapy, except during added stress such as in surgery or emotional shock; in such an emergency added corticosteroid is required and probably would be wise even when corticotropin supplements the steroid therapy, and cortical suppression is important only for a short period after steroid administration is stopped. Permanent hypofunction of adrenal cortices does not result from prolonged corticosteroid administration; cortical function quickly becomes adequate for all but stress circumstances. A short period of corticotropin administration at the end of prolonged corticosteroid therapy hastens the recovery of cortical activity. Most investigators and experienced rheumatologists consider the practical difficulties imposed by the requirements of intramuscular injections of corticotropin during prolonged corticosteroid therapy more objectionable than the possible beneficial effects. Cortical suppression that may occur during prolonged corticosteroid therapy can readily be compensated for by added corticosteroid administration and can be quickly restored by a short period of corticotropin therapy when prolonged corticosteroid administration is stopped. Consequently, the majority of students of rheumatoid arthritis administer corticosteroid therapy alone for prolonged periods of time to patients with rheumatoid arthritis rather than use combined hormone therapy.

ETHYLENE GLYCOL POISONING

To the Editor:—*What is the treatment for an acute case of ethylene glycol poisoning (drinking permanent antifreeze)? What is the lethal dose? Have there been any survivals from ingestion of ethylene or propylene glycol? Would there be any logical hope for a 22-lb. (10-kg.) child under 2 years of age who ingested over 500 cc. of antifreeze? The child was seen within one-half hour after the accident, at which time the stomach was washed; she was treated vigorously symptomatically, i.e., combating coma and acidosis. Is there some information as to the rate of absorption of the compound from the gastrointestinal tract?*

M.D., Illinois.

Answer.—There have been many recoveries after ingestion of ethylene or propylene glycol, the latter being far less toxic. The minimal lethal dose of ethylene glycol approximates 1.4 cc. per kilogram of body weight. Thus the calculated minimum lethal dose for a 22-lb. child is near 14.0 cc., assuming that a child's tolerance is as great as that of an adult. The sites of fatal damage may be the central nervous system, leading to respiratory failure, and the renal system. The detoxication products of ethylene glycol are glycolic and oxalic acids, although little of such acids may be detected in urine. For propylene glycol the detoxication ultimates are lactic acid and glycogen, manifestly less damaging. Symptoms may be delayed, since the absorption rate distinctly is slow. Treatment after oral intake includes prompt gastric lavage, establishment of diuresis, and, at times, oxygen therapy. In the presence of pronounced renal congestion, renal decapsulation may be in order. Recovery in a small child after an intake of 500 cc. is scarcely to be expected, but stark hopelessness is not conceded as inevitable.

INTESTINAL HEMORRHAGE AND TARRY STOOLS

To the Editor:—*What chemical or digestive action in the gastrointestinal tract turns blood black? At what level in the gastrointestinal tract does bleeding remain red?*

Erwin R. Kaback, M.D., Otisville, N. Y.

Answer.—As a rule a tarry stool indicates bleeding high in the gastrointestinal tract, usually above the level of the ileum. Experimentally, the oral ingestion of at least 50 to 100 cc. of blood is necessary to produce a tarry stool. It is also an indication that the blood must enter the small intestine, or higher, and not be passed for at least 8 to 10 hours for the full tarry color to develop. Blackness of the stool is believed to be from certain hemoglobin derivatives: protoporphyrin and deuteroporphyrin. Reduction of the hemoglobin to hemin and the release of the iron is probably the chief source of the tarry stool. It is thought, however, to be due to a combination of the iron released and the porphyrins present. The last half of the question is difficult to answer. Of course, bleeding from a lesion in the left half of the large intestine is usually red. This may not always be so. On the other hand, a severely bleeding peptic ulcer of the duodenum may result in the passage of large amounts of red blood. This is dependent on the rapidity with which the blood passes through the intestinal tract. It can be said, however, that if the bleeding is red it is probably from some lesion below the lower part of the ileum.

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any medical or other organization unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

OTOSCLEROSIS

To the Editor:—*A patient who has marked impairment of hearing, diagnosed as otosclerosis, has fairly satisfactory hearing with a hearing aid. She was examined for the possibility of improvement by the fenestration operation, but the prognosis was not promising. She now inquires about the procedure, advocated by some otologists in place of the fenestration operation, called stapes mobilization. May I have some information about this operation?*

Benjamin Trachtman, M.D., Brooklyn, N. Y.

Answer.—Stapes mobilization has proved of value in certain cases of otosclerosis where it is possible to break the fixation by direct manipulation without fracturing the crura of the stapes. Unfortunately, the results of this procedure in any one case are quite unpredictable, since there is no way of knowing how extensive the fixation is until the middle ear has been exposed at surgery. Statistically the procedure has been successful in obtaining a useful hearing improvement in about 30% of the cases. The operation has the advantage of simplicity and minor incapacitation for a few days. It has the further advantage of being applicable in cases of otosclerosis with moderate cochlear nerve deterioration where fenestration is no longer indicated. In cases ideally suited for fenestration, the latter procedure is far more dependable. However, the stapes mobilization can still be used as a preliminary procedure, with subsequent fenestration in the event of failure. Both operations are technically exacting and require more than ordinary proficiency and experience for satisfactory results.

PRESERVATION OF COAGULATION FACTORS

To the Editor:—*What is the rate of destruction in banked blood and plasma of the factors of blood coagulation? Specific reference to disease states of hypoprothrombinemia, hemophilia, thrombocytopenia, plasma thromboplastin component deficiency (Christmas disease), and allied syndromes are desired.*

Howard Rapp, M.D., Auburn, N. Y.

Answer.—The preservation of factors affecting coagulation in stored blood and plasma is highly complex. Recognizing the limitations of present knowledge and techniques, the survival of various coagulation factors in vitro may be summarized as follows: In hemophilia the defect is in antihemophilic globulin (AHG). When whole blood is collected in an anticoagulant acid-citrate-dextrose solution and stored at about 4 C, about 50% of the antihemophilic globulin is lost within the first 12 hours. This globulin fraction is very stable, however, in plasma frozen or dried from the frozen state. Since normal clotting will generally occur with as little as a 20% of the normal antihemophilic globulin plasma level, some benefit may be derived from blood stored for two to three days. The material of choice, however, is fresh whole blood, used within 12 hours of collection, or plasma prepared from fresh blood that is frozen, stored in the frozen state at 20 C or below, or dried from the frozen state. In plasma thromboplastin component deficiency (Christmas disease) the hemorrhagic tendency is due to a deficit of plasma thromboplastin component (PTC). This is a very stable globulin fraction, and the use of blood stored for three or four weeks or of frozen or freeze-dried plasma is highly satisfactory. In parahemophilia (Owren's disease) the defect is in the plasma labile factor, which plays a part in the conversion of prothrombin to thrombin. Only the use of fresh whole blood or fresh plasma, or of frozen or freeze-dried fresh plasma, will supply the patient with significant amounts of this fraction. The conditions of collection of the blood greatly affect the stability of the labile factor, and excessive foaming, poor mixing with anticoagulant, and slow chilling will cause more rapid deterioration.

In regard to states of hypoprothrombinemia, it may be desirable to supply prothrombin to the patient in cases of emergency. The determination of prothrombin by the one-stage method of Quick, as generally performed in the routine laboratory, is dependent on the level of plasma prothrombin, as well as the labile and stable factors that generally are not considered as separate entities. In the storage of whole citrated blood at 4 C, the prothrombin time falls to levels of 40 to 50% by the end of the first week but considerably more slowly after that. This is chiefly due to the rapid loss of the labile factor. In fresh-frozen plasma, less than one-day old at the time of freezing or freeze-drying, normal prothrombin content is preserved for many years. Plasma dried from the frozen state and restored with distilled water shows almost complete loss of prothrombin activity after short periods of time. Restoration of the plasma with 0.1% citric acid yields prothrombin times that are much more satisfactory, usually over 50%. From the clinical standpoint, in vivo prothrombin activity will be much higher because of the labile factor that the patient generally has in his own plasma and that is not accounted for when doing in vitro testing of stored material. In effect, prothrombin itself remains at satisfactory levels (over 50%) for up to 20 to 30 days in whole blood storage and almost indefinitely in frozen or freeze-dried plasma. In acute thrombocytopenic states, when danger of hemorrhage exists, transfusion of fresh viable platelets is the remedy of choice. An evaluation of therapeutic results is not possible at present; plastic containers should be used, and the whole blood, or platelets-rich plasma, should be used immediately. Some results in thrombocytopenia have been obtained with plasma prepared and stored in the manner indicated for hemophilia. Fibrinogen is relatively stable in storage and is contained in satisfactory amounts in whole blood, for up to 7 to 14 days of storage, or in frozen or freeze-dried plasma.

ALLERGY TO PENICILLIN

To the Editor:—*Can you give me the names of injectable penicillin preparations that have been investigated and found suitable to give to people who have allergic backgrounds?*

Martin Karr, M.D., San Mateo, Calif.

This inquiry was referred to two consultants, whose respective replies follow.—Ed.

Answer.—Most of the critical observations and investigations indicate that allergy to one type of penicillin presupposes an allergy to others. Neither from the standpoint of an already existing allergy to penicillin nor from the standpoint of potential initiation of allergy does it make any material difference as to which preparations of penicillin are used.

Answer.—There are no penicillin preparations in use that do not cause allergic reactions in some individuals, but these are rarely anaphylactic and still more rarely fatal. Such reactions occur even in those who have not had contact with penicillin before, but the frequency of allergic reactions is greater in those whose previous penicillin exposure may have caused sensitization and in those with an "allergic background." There are two types of penicillin on the market that have been shown to be associated with a decreased incidence of allergic reactions but not to be free from them. One of these is penicillin O (Cer-O-Cillin), which may be obtained in oral, soluble injectable, and repository injectable (chloroprocaine penicillin O) forms. The other is L-ephenamine penicillin G (Compenamine), which, on injection, acts as a repository type. It would be logical to use such types of penicillin in allergic individuals, although great care would still have to be taken, particularly if previous penicillin reactions had occurred, in which case other antibiotics might be used.

PORPHYRIA

To the Editor:—*Is the Watson-Schwartz test for porphobilinogen specific for porphyria? Is it usually positive for both the hepatic and erythropoietic forms?*

Martin N. Frank, M.D., Glenside, Pa.

Answer.—The Watson-Schwartz test for porphobilinogen is indicative of porphyria. According to some of the laboratory textbooks on clinical diagnosis, it is specific for acute idiopathic porphyria, but, in order to definitely identify type 3 uroporphyrin and coproporphyrin, spectroscopic methods are required. Most of the cases reported in the literature have been identified and diagnosed mainly by the demonstration of a chloroform-insoluble chromogen with Ehrlich's reagent—the Watson-Schwartz test. This test is usually positive for both the hepatic and erythropoietic forms, but if the erythropoietic form is suspected spectroscopic examination is demanded.

TUBERCULOSIS OF ANKLE

To the Editor:—*A 20-year-old girl with a swollen ankle that is painful on walking showed the following results on x-ray examination on Feb. 3, 1956: (1) diffuse capsular swelling of the left ankle, more obvious on the medial side than on the lateral side; (2) a diffuse "ground-glass" appearance of the bones about the ankle joint, particularly of the lateral nonarticular margins of these bones; and (3) considerable periosteal new bone formation along the medial and anterior surface of the distal portion of the tibia. The mortise of the ankle joint is essentially normal. Results of the study on this date did not particularly indicate tuberculous arthritis, although clinical diagnosis indicated it. On Feb. 10 reexamination of the left ankle showed further periosteal new bone along the medial and anterior margin of the distal portion of the tibia just above the medial malleolus. There was a moderate amount of notching involving the anterior portion at the joint space of the tibia and radiolucency of the opposite portion of the astragalus, suggesting osteomyelitis at these sites. A general "ground-glass" appearance of the tibia and astragalus at their adjacent articular surfaces and marked joint effusion and soft tissue swelling along the medial malleolus were present. No material was obtained on aspiration of the joint space, but the subcutaneous effusion showed a few acid-fast bacilli. This material was injected into a guinea pig and cultured. The tuberculin patch test was positive. This patient is five months pregnant. Her chest x-ray is negative for tuberculosis. The urine is microscopically clear. She weighs 120 lb. (54.4 kg.). She has had 1 gm. of streptomycin daily for one week; now she receives it twice weekly. She is also on therapy with 100 mg. of isoniazid three times a day and 1 gm. of aminosalicylic acid three times a day. A cast has been applied. Please comment on the dosage, the length of time it should be continued, and the length of time the cast should remain on.*

George E. Morrissey, M.D., Davenport, Iowa.

This inquiry was referred to two consultants, whose respective replies follow.—Ed.

Answer.—This patient has tuberculosis of the ankle, and there is now evidence of osteomyelitis in the x-ray findings. Pregnancy complicates her condition. One gram of streptomycin once a week together with isoniazid and aminosalicylic acid, as presently given, is the correct dosage; it should be continued for at least one year. At termination of pregnancy, dependent on x-ray evidence and progress of the case as far as soft tissue is concerned, decision should be made as to whether arthrodesis of the ankle is indicated. There are a number of cases of major involvement of soft tissue that respond to drug therapy, but, if progressive osteomyelitis has occurred, surgical intervention is indicated. This can await the termination of pregnancy in a normal manner, with the patient kept under the drug therapy. The question might be raised as to whether streptomycin might cause deafness in the newborn infant, although this dosage is not likely to disturb the adult.

Answer.—Tuberculosis of the ankle with diffuse synovial involvement and evidence of erosion in both the tibia and astragalus will not be cured or arrested by the drugs mentioned above. The dosages seem adequate and will probably bring this young woman through her pregnancy. The cast should remain on during this period. After the obstetric phase has been concluded, this ankle should be fused surgically, under the protection of the same drugs. The end-results of such fusions are good, and this method will shorten the time of her disability substantially.

CARBOHYDRATES IN LEMON JUICE

To the Editor:—*What is the amount of carbohydrate in frozen lemonade as purchased in stores?*

George H. Hoxie, M.D., Berkeley, Calif.

Answer.—In order to comply with United States standards published by the United States Department of Agriculture and effective Dec. 19, 1953, frozen concentrate for lemonade must be "the product prepared from lemon juice and one or more nutritive sweetening ingredients." Frozen concentrate for lemonade, when prepared as lemonade, should test not less than 10.5 degrees Brix, according to the United States standards. By this definition, prepared lemonade from frozen concentrate contains about 10% carbohydrate. Fresh lemon juice without sugar is about 7.7% carbohydrate. If it is diluted 1 to 4 with water, its carbohydrate amounts to about 2%.

VITAMIN-MINERAL SUPPLEMENTS

To the Editor:—*I have been astounded by the prevalence of vitamin-mineral supplements for prenatal use containing calcium lactate instead of dibasic calcium phosphate. Current opinion seems to indicate that an excess of phosphate favors the occurrence of leg cramps. I have read the work of the Pages of California and the results of the clinical research by the group at the Margaret Hague Maternity Hospital, Jersey City, N.J., but it is my impression that their results are inconclusive and statistically insignificant. Should pregnant women be encouraged to increase their consumption of this new type of prenatal supplement and to decrease their consumption of milk as the authors suggest?*

Jerome Abrams, M.D., Philadelphia, Pa.

Answer.—If pregnant women will eat a well-rounded diet every day, they will not have to take extra vitamins in capsule or tablet form except vitamin D, because this vitamin is found in only limited amounts in natural foods. Likewise, extra minerals are seldom needed by women who eat a proper diet. Even though there appears to be proof that large quantities of milk or dibasic calcium phosphate predispose to muscular tetany, pregnant women should drink a quart of milk daily. If they have leg cramps they can obtain relief by adding small amounts of aluminum hydroxide gel to the diet in order to remove some of the dietary phosphorus from the intestinal tract. They can also be helped by taking 10 mg. of thiamine hydrochloride daily. During an attack of pain, massage or standing on a cold floor may help.

BEST TIME TO DO BLOOD SUGAR TESTS

To the Editor:—*In discussions with different doctors about the best time to make blood sugar determinations in diabetic patients, nearly all of them maintain that it is the determination of the fasting blood sugar level that is the most valuable to the doctor. I have always thought the blood sugar level would be the highest about two to two and one-half hours after a meal and that that was a good time to determine it. Please discuss this.*

M.D., Indiana.

Answer.—The choice of time for determining the blood sugar level depends primarily on the purpose for which the blood sugar test is sought. If the blood sugar level is to be used as an aid in the diagnosis of diabetes mellitus, then it should be emphasized that there are many patients with early diabetes mellitus in whom the fasting blood sugar level may be normal even though the patient will show moderate glycosuria and an elevation of the blood sugar level above normal when the blood and urine are tested at a period from one to two hours after a full meal containing 75 to 100 gm. of carbohydrate. For this reason, it has become the consensus of opinion that, in the attempt to discover diabetic patients, the best time for testing both blood and urine is one hour after a meal, preferably breakfast. Naturally, if the patient does not take a sufficiently large breakfast, even this test may not be satisfactory. The second factor in the matter of diagnosis appears in the delayed return to normal of the blood sugar level after an adequate test meal. Therefore, in some laboratories, the practice is to determine the blood sugar level two hours after either a normal meal or a test meal containing glucose and consider that if the blood sugar level has not returned to 100 mg. per 100 cc. (Somogyi-Nelson) or 120 mg. per 100 cc. (Folin-Wu) at the end of two hours this fact, together with glycosuria, is an indication of diabetes, which might not otherwise have been recognized if the fasting blood sugar level alone were determined. In patients who are taking long-acting insulin, determination of the blood sugar level before breakfast may be of considerable value as evidence of the effectiveness of such an insulin as protamine zinc insulin in controlling hyperglycemia during the night.